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THE INSECT PEST SURVEY BULLETIN

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INSECT PEST SURVEY BULLETIN

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OUTSTANDING ENTOMOLOGICAL FEATURES IN THE UNITED STATES FOR APRIL, 1931.

The usual reports of more or less serious cutworm damage were received from practically all parts of the United States. Unusual damage by these insects was reported from North Carolina, North Dakota, Nebraska, Montana, and parts of Idaho.

Serious Hessian fly infestations are reported from western Illinois, part of the Platte Valley in Nebraska, and limited areas in Iowa. In Henderson County, Illinois, considerable wheat is being plowed out on account of infestation.

During the middle of April the chinch bug started migrating into the fields in Illinois. By the middle of the month migration was observed in Missouri and Kansas. There is a decided indication of serious chinch bug trouble in southeastern Kansas.

The clover leaf weevil is reported as very abundant in central Illinois and parts of Iowa, Missouri, Kentucky, and Kansas.

The pea aphid is reported in outbreak numbers in parts of Kansas and northeastern Arkansas, Arizona, and southern California. Isolated infestations were reported from Mississippi. The infestation reported in the last number of the Survey Bulletin from the Willamette Valley of Oregon increased materially during late March.

Damage by the shot-hole borer is reported to be unusually severe in Ohio this spring. In view of the very extensive and serious drought of 1930 it is surprising that severe damage by this insect is not more extensively observed.

The first record for 1931 of the pupation of codling moths was made in Missouri on April 3; at Cornelia, Georgia, April 15; at Carbondale, Ill., April 12; at Urbana, Ill., April 14; in Nebraska, April 13; in Pennsylvania, April 21; and in Maryland, April 21. The insect is quite generally reported as normally abundant throughout the Middle Atlantic, South Atlantic, and East Central States. In the Rocky Mountain region the insect is reported as very abundant in New Mexico, and as having sustained a very slight mortality in Idaho.

The Eastern tent caterpillar appears to be below normal in numbers throughout the New England, Middle Atlantic, and South Atlantic States.

Deciduous fruit aphids are reported as quite generally below normal in numbers along the Atlantic Seaboard from Massachusetts to Georgia, and westward to Missouri. Reports of an unusual abundance of deciduous fruit aphids have been received from Mississippi. A limited heavy infestation of the apple grain aphid is reported from New York State, and owing to the unusually mild winter the woolly apple aphid was as numerous during the first week of April in Wenatchee, Wash., as they were in July of last year.

Apple leafhoppers are reported as unusually abundant in Connecticut and the East Central States. They are so numerous in parts of Missouri that the fruit growers are becoming alarmed.

The first emergence of the oriental fruit moth to be reported from Georgia was on April 8, at Thomaston. Adults were observed at Roanoke, Va., on April 14.

A very heavy migration of the common red spider into fruit trees in western Washington indicates that the very serious outbreak of last year may be repeated this season.

The plum curculio appears to be delayed in emergence in the South Atlantic States. Only 3 beetles were collected at Thomaston prior to April 4, on which date 35 adults were collected in two hours by jarring. This is about three weeks later than general emergence last year and the latest emergence in 11 years. Adults were observed for the first time on April 14 in Virginia and ^{southern} Illinois, and on April 15 in Kentucky.

Heavy infestations by the rusty plum aphid are reported from Georgia and Mississippi.

The grape leafhopper is more abundant than usual in the commercial grape sections of northern Ohio. Damage from this insect is more abundant than ever before recorded in the San Joaquin Valley, California, and in the central part of the Valley the insects are so numerous that the small leaves are turning brown.

A severe outbreak of the six-spotted mite has occurred over the entire citrus belt of Florida and some defoliation has resulted where spraying has been neglected.

The vegetable weevil continues to be a serious pest on a variety of truck crops in Mississippi.

The first adult of the spotted cucumber beetle to be observed in Virginia this season was seen at Norfolk on April 3, and the first adult was reported from Illinois on April 15.

The western spotted cucumber beetle is making serious inroads on fields of seedling clover in the Willamette Valley of Oregon, and is doing considerable damage to melons in the San Joaquin Valley of California.

The Colorado potato beetle is reported as unusually abundant in the Chadbourn district of North Carolina, and in the Norfolk district of Virginia. There is also quite a heavy infestation by this insect as far south as Alachua County of Florida.

The seed corn maggot is not so serious as usual on potato seed pieces in the trucking sections of Virginia and the Carolinas, although it is reported as causing considerable damage to snap beans in North Carolina, and doing considerable damage to corn, peas, and beans in western Texas.

The cabbage webworm became so numerous on turnip greens about Lucedale, Miss., that canning operations had to be suspended.

Large quantities of spinach harvested early in April had to be rejected on account of the unusually heavy infestation by the green peach aphid in the Norfolk district of Virginia.

The first adult of the harlequin bug to be observed in Virginia this season was collected April 9. The first specimen observed in the Chadbourn district of North Carolina was recorded as of April 21.

The most serious outbreak of buffalo gnats in many years was reported in Coahoma and Tunica Counties, Miss., in the early part of April. It was estimated that more than 200 mules, besides other livestock, were killed by gnats within a day or two. Similar reports of serious infestation were received from parts of Arkansas. Buffalo gnats, Simulium vittatum Zett., were seriously infesting mules, cattle, and hogs south of Westmoreland, Kans.

OUTSTANDING ENTOMOLOGICAL FEATURES IN CANADA FOR APRIL, 1931.

Grasshoppers have been on the upward trend in many parts of Canada, particularly western Canada, during the past two years, and although they were not sufficiently abundant last year to cause serious crop damage, it is anticipated that serious outbreaks may develop in many parts of the Prairie Provinces and British Columbia, if conditions continue favorable during 1931 and 1932.

The pale western cutworm caused serious crop losses in Saskatchewan and eastern Alberta, during 1930. In Saskatchewan, the insect greatly extended its range and the outbreak was the worst so far experienced, the most severe losses occurring in the south-central region of the province. It is forecast that if weather conditions are average, crop losses will be even greater in the infested regions during 1931.

The red-backed cutworm also was a pest of importance over a large part of the Prairie Provinces during 1930, attacking grain crops, clover, and

vegetable and other garden plants with resultant severe losses in many sections.

Cutworms, in general, were not notably trouble some crop pests in eastern Canada, during 1930, and they were scarcer and less injurious than for many years in British Columbia. The bertha armyworm, which caused crop damage in the Prairie Provinces in 1929, also was scarce.

Few reports of damage by wireworms were received from eastern Canada during 1930, although quite severe injury was noted in sections of southern Quebec and southwestern Ontario. In the West, wireworm depredations were slight in Manitoba, average or below average in Alberta, and much less than in 1929, in Saskatchewan. Damage by these insects was worse than usual in British Columbia, particularly in the Okanagan, Fraser, and Bulkley valleys.

White grubs were markedly injurious in sections of Quebec and eastern Ontario, during 1930, and a major flight of beetles is forecast for May and June, of the present year, over a large area of southern Quebec. Damage to field and garden crops by second and third-year grubs will continue in many sections.

The European corn borer again showed a decrease in infestation, in 1930, over the greater part of the area in Ontario where corn is a major crop. In areas throughout the province where field corn is of little importance, however, a definite upward trend in the infestation of sweet corn was noted. In Quebec, infestations continued relatively light, and in the Maritime Provinces, they are still comparatively negligible.

The Colorado potato beetle was not more than normally injurious in most parts of the Dominion, during 1930, although a moderate increase in abundance over 1929 was reported from parts of the Maritimes and the Prairie Provinces.

Reports indicate an increased abundance of the wheat stem sawfly in the Prairie Provinces during 1930, but crop damage was generally less severe than in 1929.

The diamond-back moth occurred in outbreak form in the Dominion west of Manitoba, during 1930, considerable acreages of cruciferous crops being severely damaged or destroyed in the provinces of Saskatchewan, Alberta, and British Columbia.

Flea beetles of several species were again troublesome pests in various parts of the Dominion during 1930.

The only reports received during 1930, concerning the Hessian fly were from Manitoba and Saskatchewan, where the insect was reported as scarce, and from Vancouver Island, where it caused local damage to wheat.

In late summer, 1930, the green bug, Toxoptera graminum Rond., was recorded for the first time in outbreak numbers, effecting material

damage to oats in sections of western Manitoba and eastern Saskatchewan.

Budmoths continue to decline in Nova Scotia and in the St. John Valley, New Brunswick. In Ontario, the budmoth situation appears to be gradually improving, although considerable damage was caused in some localities, during 1930.

The codling moth was unusually injurious in the Maritime Provinces and Ontario during 1930, but was notably scarce and less injurious than for many years in British Columbia.

The oriental fruit moth decreased to a marked extent in peach orchards of the Niagara peninsula, Ontario, during 1930, due to natural control factors.

Spider mites were abundant and destructive on a variety of plants, in many parts of Canada, particularly in the Prairie Provinces, during 1930.

Larvae of a tussock moth, believed to be the white-marked tussock, were found attacking fir, white spruce, and alder, in sections of Nova Scotia, in 1930. In British Columbia, the tussock moth, Hemerocampa pseudotsugata McD., defoliated large areas of Douglas fir in sections of the province.

During 1930, the satin moth was found for the first time in eastern Canada, in the Maritime Provinces, at several points in New Brunswick and Nova Scotia. Previously it was known to occur only in British Columbia, where it was discovered in 1920.

The outbreak of the hemlock looper which developed on the north shore of the St. Lawrence River, in Quebec, between the Bersimis and Pentecote Rivers, and was severe in 1928, declined in 1929, and subsided entirely during 1930. The extensive rainfall in the infested region during the past two years is believed to have been an important factor in the decline of the insect.

Bark beetles are on the increase over large areas in British Columbia, and, during 1930, were unusually destructive, particularly affecting western yellow pine and lodgepole pine.

The black-headed tip moth continued to cause material injury to balsam and white spruce on Cape Breton Island, Nova Scotia, and to balsam, hemlock, Douglas fir, and Sitka spruce over a large part of the coast section of the southern mainland of British Columbia.

Further scouting for the brown-tail moth in Nova Scotia revealed no signs of this pest, and supports the belief that it has been exterminated in Canada. Scouting for the gypsy moth in the Eastern Townships of Quebec, where a local outbreak was discovered in 1924, indicates that this species also has been completely stamped out.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Wisconsin A. A. Granovsky (April 3): Eggs of Camnula pellucida Scudd. and eggs of Melanoplus femur-rubrum DeG. are moderately abundant. Grasshoppers are on the increase.
- Utah C. F. Knowlton (April): Grasshopper eggs are beginning to hatch, and first instar nymphs have been collected in several localities in Boxelder and Tooele Counties. Overwintering nymphs appear to be less abundant in Tooele and Boxelder Counties than a year ago at this time.
- New Mexico J. R. Eyer (April): Grasshopper eggs are very abundant. Nymphs are commencing to appear in hedge rows adjoining grain fields and pasture lands.

CUTWORMS (Noctuidae)

- North Carolina W. A. Thomas (April 20): A single report of cutworm injury has come to the laboratory at Chadbourn so far this season. There seems to be practically no cutworm injury in this area to date.
- C. H. Brannon (April 27): Severe damage has been caused by the variegated cutworm, Lycophotia margaritosa saucia Hbn. to commercial plantings of gladiolas in Carteret County. (April 15): Various species of cutworms are causing unusually serious damage over the State.
- Florida F. S. Chamberlin (April 18): Cutworms are only moderately abundant. Infestations appear less than is usually the case in Gadsden County.
- J. R. Watson (April 21): Cutworms are moderately abundant. About as usual.
- Kentucky W. A. Price (April 22): Cutworms are very abundant. The clay-backed cutworm, Feltia gladiaria Morr., is doing serious damage to clover and oats, also to tobacco in the bed.
- North Dakota J. A. Munro (April 11): Half-grown larvae (Euxoa sp.) were sent in by the county agent at Mott, and he states that they are very abundant. This is about the earliest date on record for this office to receive cutworms..
- South Dakota H. C. Seyerin (April 22): Cutworms are very abundant in alfalfa fields in Perkins County.
- Iowa C. J. Drake (April 27): Cutworms were found in large numbers in Washington County.

H. E. Jaques (April 24): Cutworms are showing up in Union, Monroe, and Pocahontas Counties.

Missouri

L. Haseman (April 24): Two or three species of cutworms are very abundant. They are doing some damage to flowers and lawns, and we are expecting within the next month to receive serious complaint of damage on sod corn.

Nebraska

M. H. Swenk (April 8): The army cutworm, Chorizagrotis auxiliaris Grote, was noticed in ~~wheat~~ fields of northwestern Boxbutte County west of Hemingford northwest of Alliance. As usual, the worms/moving through fields at the rate of 15 to 50 feet a day, feeding both day and night. Some fields are already badly damaged. Twenty or more farms are known to be affected involving between 500 and 1,000 acres.

Kansas

H. R. Bryson (April 23): Dr. R. C. Smith reports the army cutworm in some alfalfa fields, but scarce, April 18. (April 22): There are indications that cutworm injury is on the increase judging from the number of requests during the past month for information on cutworm control.

Arkansas

D. Isely (April 25): Climbing cutworms have been unusually injurious to swelling grape buds in northwestern Arkansas.

Alabama

J. M. Robinson (April 20): Cutworms are moderately abundant on cabbage, tomato, and asparagus at Auburn.

Mississippi

R. W. Harned and assistants (April): Although cutworms are being quite generally reported from all parts of the State, the only section where they are unusually abundant is in the vicinity of Picayune, Pearl River County.

Texas

F. L. Thomas (April 20): Cutworms are reported at College Station. Less complaint than usual.

Montana

A. L. Strand (April 20): The army cutworm, Chorizagrotis auxiliaris, is present in outbreak numbers from one end of the State to the other. Particular damage is being done in the central region, centering around Fergus County.

Idaho

C. Wakeland (April 20): An unidentified species is doing considerable damage to dry-land grain crops in Bannock and Powers Counties.

Nevada

G. G. Schweis (April 21): Cutworms are doing some damage to gardens at Reno.

New Mexico

J. R. Eyer (April): Cutworms are moderately abundant. Cirphis unipunctata Haw. and Lycophotia margaritosa Haw. have been caught in moderately large numbers in codling moth bait pans.

Oregon L. P. Rockwood (April): Garden cutworms (Euxoa sp. and Feltia sp.) appear to be fewer than last year in Washington County. Neuria procincta Grote is present in some numbers in oats and vetch fields and in some alfalfa fields.

California E. O. Essig (April 20): Cutworms are moderately abundant at Los Banos, in the San Joaquin Valley.

WIREWORMS (Elateridae)

South Carolina P. K. Harrison (April 17): The first specimens of larvae of Horistonotus uhleri Horn. were collected in first 6 inches of soil, three in fallow soil, and one in soil that is being cultivated, at Fairfax.

J. N. Tenhet (April 15): First indications of activity of H. uhleri Horn. at Fairfax this season were noted this week. The spring has been late and cold and wireworm activity is occurring later than usual.

Alabama K. L. Cockerham (April 10): On April 10, examinations at Foley showed the following: Around cabbage plants set 18 inches apart there were 1.4 wireworms (Heteroderes laurentii Guer.) per plant; hills of corn 3 feet apart in the rows showed 5 worms per hill; around corn drilled in the row 8 to 10 inches there were 2 worms per foot; oats drilled thickly in the row showed 13 worms per 10 feet. Corn examined was planted March 19.

Louisiana W. E. Hinds (April 23): Adults of Aeolus dorsalis Say were taken in large numbers in sugarcane fields and near alfalfa fields at Franklin, April 16 and 17.

Nevada G. G. Schweis (April 21): Wireworms are very numerous in Lincoln County.

California E. O. Essig (April 20): Wireworms are moderately abundant in the Delta Region.

S. Lockwood (April 7): A click beetle, Pheletes canus Lec., was found doing a small amount of damage to the opening buds of apple in Sonoma County, March 28.

WHITE GRUBS (Phyllophaga spp.)

Virginia H. G. Walker and G. E. Gould (April 22): White grubs are moderately abundant in the vicinity of Norfolk.

Illinois W. P. Flint (April 20): The first adult June beetles were seen in flight at Carbondale April 16; at Jacksonville, April 14.

- South Dakota H. C. Severin (April 22): White grubs are moderately abundant and are injurious to lawns, grass lands, hay, and meadows at Brookings and Bryant.
- Iowa H. E. Jaques (April 24): White grubs are scarce in Case, Page, Polk, Monroe and Henry Counties, and moderately abundant in Pocahontas, Union, and Des Moines Counties.
- Kansas H. R. Bryson (April 23): White grubs are moderately abundant at Manhattan.
- Missouri L. Haseman (April 24): White grubs are only moderately abundant. June beetles were flying at Springfield, April 21. (Paul H. Johnson)
- Louisiana W. E. Hinds (April 23): May beetles (Phyllophaga sp.) were reported in enormous numbers at lights at Franklin on March 20, emerging during a sultry period just preceding a thunder storm on that night. They were also reported as stripping foliage from young pecan trees at Jennings, about the middle of April. P. congrua Lec. was taken in large numbers at trap lights at Franklin, April 16 and 17.
- Mississippi R. P. Colmer (April 19): May beetles observed cutting young foliage on seedling pecans.

GREEN JUNE BEETLE (Cotinis nitida L.)

- North Carolina W. A. Thomas (April 10): The work of this insect is much in evidence on the lawns in Chadbourn. Unsightly mounds of earth may be seen on nearly every lawn and in a few places the grass shows signs of dying.

SCARABAEID BEETLES (Anomala spp.)

- Louisiana W. E. Hinds (April 23): A. undulata Melsh. and A. innuba Fab. have been taken in small numbers at trap lights at Franklin, April 16 and 17.

RED SPIDER (Tetranychus telarius L.)

- Missouri L. Haseman (April 24): During the month a number of complaints were received regarding red spiders on ornamentals.
- Mississippi H. Gladney (April 17): The red spider is very abundant on citrus and vetch at Ocean Springs, Jackson County.
- Washington M. A. Yothers (April 6): A tremendous migration from the ground and the bark of tree trunks of Delicious and Winesap apples up into the trees was first noticed at Wenatchee April 6. Thousands of trees have been treated with sticky tree-banding material to prevent migration. Some red spiders

are already up in the trees, which are now in the cluster-bud stage. First eggs for the season are being deposited. Orchardists are spraying with summer strength lime-sulphur to destroy the mites above the bands. Last season infestation was first noticed in July. There was serious loss after that time, the trees becoming defoliated and the fruit ceasing to grow further.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Illinois

W. P. Flint (April 20): J. H. Bigger reported severe infestations in western counties. In two hours' time he saw 100 acres in three fields in Henderson County which were to be plowed up because of this infestation. (April 8)

Iowa

C. J. Drake (April 27): The spring brood is emerging throughout the State. In the heavily infested counties the flies occur in great numbers.

Nebraska

M. H. Swenk (March 1-April 15): The Hessian fly is in general moderately abundant over the southeastern part of the State in early-sown and volunteer wheat, but is menacing only in those sections where the July rainfall was about normal or where the campaign last fall for the destruction of the volunteer and delayed sowing of the crop received less than normal support. Field investigations show that in the Platte Valley counties from northern Saunders and Colfax Counties to Hall County there is a rather heavy infestation in many fields. In Colfax County the infestation in two fields was 3.6 and 4.25 puparia per infested stem. A Platte County field showed 56 per cent of the stems infested with an average of 1.77 puparia per infested stem. In Hall County the fly is quite plentiful, with volunteer wheat very heavily infested. Early sown fields in York and Jefferson Counties have been considerably injured in a number of cases. A survey of Lancaster, Seward, northern Saline, western Cass, and southern Saunders Counties that has just been completed showed relatively light infestations except occasionally in early sown or volunteer wheat. The worst infested field in this area was an early sown one northwest of Lincoln which showed 17 per cent of the stems to be infested with an average of 1.4 puparia per infested stem. Fields which were sown on or after the announced fly-safe date are practically free from infestation. On April 15 but few of the flies had emerged from the puparia, but there were many pupae present and a heavy wave of emergence is apparently due. (April 20): The Hessian fly is moderately abundant in Platte Valley from Fremont to Grand Island and locally southward.

Iowa

H. E. Jaques (April 24): The Hessian fly is scarce in Osceola, Cass, and Madison Counties; moderately abundant in Harrison, Mills, Crawford, Warren, Monroe, Henry, Des Moines, and Page Counties; and very abundant in Monona, Fremont, and Polk Counties.

Oregon

M. M. Reeher (March 19): The Hessian fly began emerging at Forest Grove on the 19th of March. On account of the dry season last fall most of the spring emergence will come from overwintering flaxseeds on the stubble, as few flies emerged and little volunteer wheat appeared until too late for oviposition.

CORN

CHINCH BUG (Blissus leucopterus Say)

Illinois

W. P. Flint (April 20): Chinch bugs are now flying and have flown to fields in the central and south-central parts of the State. A considerable area shows bugs abundant enough in the small grain fields to cause very serious losses if the weather remains dry or even normal. (April 20): J. H. Bigger reports that chinch bugs were seen flying in Menard and Sangamon Counties April 14, in Hancock County April 17, and in Adams County April 15. Heavy infestation in portions of Menard and Sangamon Counties. The Christian County Farm Adviser reports extremely large numbers.

Missouri

L. Haseman (April 24): The chinch bug is very threatening. Over-wintering bugs migrated April 15-16.

Kansas

H. R. Bryson (April 23): Information taken from the Kansas Weekly Crop Report dated March 20 indicates that chinch bugs may become a menace in the southeastern counties and that many survived the mild winter in spite of burning campaigns carried on in this area to reduce the number emerging from hibernation this spring. Additional information in the Weekly Crop report of April 20 records an observation of the county agent of Wilson County who observed a flight of bugs on April 11. Large numbers of bugs apparently survived the mild winter in that county. Chinch bugs are reported as having killed 25 acres of newly sown wheat last fall in Sumner County and are abundant in that locality this spring. Chinch bugs are scarce but present at Manhattan.

Oklahoma

C. F. Stiles (April 27): Chinch bugs are very numerous in the northeastern part of the state, and in some counties in the north central portion. One farmer reports that wheat is firing (?) in Nowata County. These pests overwintered here at Stillwater in large numbers. We expect serious damage

unless the weather is unfavorable to chinch bug development before the small grains are cut.

CORN EAR WORM (Heliothis obsoleta Fab.)

- Florida J. R. Watson (April 21): The corn ear worm is scarce, except in the southern part of the State where it is moderately abundant.
- Missouri L. Haseman (April 24): Diggings at Columbia revealed 1 pupa of the corn ear worm, 3 dead, and 4 decomposed.
- Mississippi R. W. Harned and assistants (April): H. H. Carpenter (April 20): The corn ear worm is scarce in northern Mississippi.
- Louisiana W. E. Hinds (April 23): The corn ear worm has not been found yet at Baton Rouge.

CORN FLEA BEETLE (Chaetocnema pulicaria Melsh.)

- Mississippi R. W. Harned (April 22): Complaints of killed or more or less severely injured corn, accompanied by specimens of the corn flea beetle, C. pulicaria, have been received from Lee, Lauderdale, Neshoba, and Leake Counties.

CORN SEED BEETLE (Agonoderus pallipes Fab.)

- Illinois W. P. Flint (April 20): Corn seed beetles flew out of hibernation in Warren County April 7.

ALFALFA, CLOVER, ETC.

ALFALFA WEEVIL (Phytonomus posticus Gyll.)

- Nevada G. G. Schweis (April 21): The first eggs of the alfalfa weevil were observed on April 6 at Reno.

~~CLOVER~~ CLOVER LEAF WEEVIL (Hypera punctata Fab.)

- Illinois W. P. Flint (April 20): The clover leaf weevil is very abundant in central Illinois but frequent light showers and warm weather are producing conditions so favorable to the growth of the clover plant that there will be no permanent damage from the weevil.
- Kentucky W. A. Price (April 22): The clover leaf weevil larvae are very numerous and doing much damage to clover at Brandenburg, April 8.
- Iowa H. E. Jaques (April 24): The clover leaf weevil is doing serious damage in some clover fields in Des Moines County.

C. J. Drake (April 27): The clover leaf weevil has been reported by the county agents in the counties of Madison, Union, and Washington as occurring in large numbers in clover fields and doing a considerable amount of damage.

Missouri

L. Haseman (April 24): The clover leaf weevil larvae are rather abundant again this year though apparently no worse than usual. They are beginning to pupate at this date.

Kansas

H. R. Bryson (April 23): The clover leaf weevil is slightly more numerous than usual. Dr. R. C. Smith reports damage in one field near Alta Vista. All sizes of larvae are present in all alfalfa fields. Generally there is no apparent injury. First cocoons were found April 11. One report from a county agent states that this pest was injuring alfalfa in a field at Clements. An infestation of 5 larvae per crown was observed on a 2-year-old stand.

PEA APHID (Illinoia pisi Kalt.)

Virginia

G. E. Gould (April 22): The pea aphid is moderately abundant on alfalfa, but is still scarce on garden peas.

Kansas

H. R. Bryson (April 23): Dr. R. C. Smith reports pea aphids present, but in small numbers only, in most alfalfa fields. No injury has been seen or reported. Only the winged forms have been seen so far. Growing conditions are excellent for alfalfa now. Lady bird beetles, Hippodamia convergens Guer. and Adalia bipunctata L., are plentiful. Dr. E. G. Kelly states that numbers are increasing to outbreak proportions at Larned and Great Bend. There is a slight outbreak also at Dodge City.

Arkansas

D. Isely (April 25): An outbreak of green pea aphids on alfalfa has been reported from central and northeastern Arkansas.

Mississippi

R. W. Harned and assistants (April): Pea aphids were collected on alfalfa at Pace on April 18, and on Austrian winter peas at Cleveland on April 19. Infestations were spotted and in places very severe. The specimens received were heavily parasitized.

Oregon

L. P. Rockwood (April 2): Infestation increased rapidly during March on early fall-sown vetch and Austrian peas where the aphids established themselves last fall and survived the mild winter in viviparous form. They have become abundant on cover crops in some orchards of Washington and Yamhill Counties. The fungus Entomophthora aphidis Hollman has checked them in one orchard, but although present in other places it has not been observed as epidemic. A few Hippodamia convergens Guer. have appeared in the fields and Coccinella trifasciata Linn. are present in large numbers in some old prune orchards, in or

near which they probably hibernated. Hippodamia spuria Lec. and H. ambigua Lec., which are hibernating together on a bald hill in Yamhill County, had not left their cache by March 22. They are present in great numbers in this cache. Some were affected by the fungous disease Beauveria globulifera Speg. The first alate viviparous females were found March 16, but very few and not many nymphs. There is as yet no indication that late-fall-sown vetch and Austrian field peas have become infested by I. pisi migrating from early-fall-sown vetch.

ALFALFA CATERPILLAR (Eurymus eurytheme Boisd.)

Kansas

H. R. Bryson (April 23): R. C. Smith reports on April 18 finding several nearly grown larvae of the alfalfa caterpillar, but no injury has been seen or reported. Adults were present about April 1, but very scarce and below normal in abundance, at Manhattan.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana

W. E. Hinds (April 23): The first moths emerged March 16, and a number have since emerged from overwintering larvae collected in the fields on March 20. A few adults, mostly males, taken at trap lights, Franklin, April 16 and 17.

SUGARCANE BEETLE (Euetheola rugiceps Lec.)

Louisiana

W. E. Hinds (April 23): E. rugiceps is abundant again in St. Mary Parish where the heaviest infestation has centered continuously for more than 50 years past. Beetles have been injuring sprouts of cane and corn since the last week of March but no egg laying occurred before the middle of April. Adults were taken at trap lights at Franklin in considerable numbers on April 16 and 17, when night temperatures of 60 degrees F. or higher prevailed. Mating and egg laying were just beginning apparently about April 16. A few specimens of Ligyris gibbosus DeG. were also captured.

A SCARABAEID (Dyscinetus trachypygus Burm.)

Louisiana

W. E. Hinds (April 23): Large numbers were taken at trap lights near the banks of Bayou Teche at Franklin on April 16 and 17.

F R U I T I N S E C T S

TARNISHED PLANT BUG (Lygus pratensis L.)

New York

Weekly News Letter, New York State College of Agriculture (April): The tarnished plant bug is reported as unusually abundant in Ulster County, where it is damaging apple and pear buds. (Abstract J.A.H.)

Illinois

S. C. Chandler through W. P. Flint (April 18): Moderate numbers of the tarnished plant bug were taken last week. None were taken in jarring at Carbondale this week. They were quite numerous in apple orchards throughout central and southern Illinois.

Kentucky

W. A. Price (April 22): Tarnished plant bugs were abundant in the State on April 15.

North Dakota

J. A. Munro (April 18): Quite a few tarnished plant bugs have been noticed of late.

Nebraska

M. W. Swenk (March 15 - April 15): The first tarnished plant bugs were observed flying about at Lincoln on February 26 by D. B. Whelan. On April 15 a Nemaha County correspondent reported that this pest was killing many of the apple buds in his orchard, the pest being present at the rate of three or four to the bud.

Washington

R. L. Webster (April 14): Reported as doing considerable damage to pear buds, the injury being evident last week in Wenatchee and Okanogan Valleys. Probably the injury is fully as severe as in 1930.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Ohio

T. H. Parks (April 27): More complaints have reached our office about this insect during the past two months than in many years. The drought of 1930 apparently placed trees in condition to receive damage from this pest.

FLEA BEETLES (Halticinae)

Kentucky

W. A. Price (April 22): Flea beetles are abundant in orchards about Henderson and Lexington.

SCARABAEID BEETLES (Scarabaeidae)

North Carolina

R. W. Leiby (April 22): Hoplia trivialis Harold is reported as defoliating new leaves and growth of peach trees in a very few orchards at Winston-Salem. (Det. by C.S.Brimley.)

- Mississippi R. W. Harned (April 22): On April 15 a correspondent at Baldwyn sent 22 adults of H. trivialis and 2 adults of Serica sp. to this office with the following comment: "I have 2 acres of young apple and pear trees and these beetles are defoliating them." (Det. E. A. Chapin.)
- California S. Lockwood (April 7): Many specimens of Hoplia sackeni Lec. were collected in the heads of barley grown in an orchard in Sonoma County. Mr. Branner states that he has seen some damage to young apple trees by this insect.
- North Carolina R. W. Leiby (April 22): Serica iricolor Say has been reported as defoliating new leaves and growth of peach in a very few orchards at Winston-Salem. (Det. by C. S. Brimley.) Dichelonyx fuscata Lec. has been reported as defoliating new leaves and growth of peach in a very few orchards at Winston-Salem.

APPLE

CODLING MOTH (*Carpocapsa pomonella* L.)

- New Jersey Weekly News Letter, New Jersey State College of Agriculture (April 21): Codling moth larvae are in abundance in the Glassboro area, Gloucester Co., and more than I have ever seen before. Codling moth pupae can be found without difficulty. It is estimated that 5 to 10 per cent of the moths are in the pupal stage at the present time. Some empty pupal cases have been found. Whether these empty cases are from last year or not, has yet to be determined.
- Pennsylvania H. N. Worthley (April 22): The codling moth is moderately abundant at State College. The first pupae appeared April 21.
- Maryland E. N. Cory (April 22): P. D. Sanders has examined over 250 codling moth larvae and found eight in the pupal stage today.
- South Carolina A. Lutken (April 27): Adult codling moths emerged April 24 at Clemson.
- Georgia C. H. Alden (April 20): The codling moth is moderately abundant at Cornelia. The moths began to emerge April 15.
- Ohio T. H. Parks (April 10): Overwintering codling moth larvae at Columbus have been fed upon by birds so freely that it is impossible to collect any number from tree trunks. Between 200 and 300 were collected by Mr. C. H. Huff from crates piled in a packing house. This insect seriously damaged the apple crop in Lawrence County last fall and is not difficult to find

hibernating on tree trunks. One orchard company employed nine workmen to scrape the tree trunks of all the trees in 100 acres of orchard. This removed the larvae with the loose bark. Birds followed the workmen and extracted the larvae from the fallen bark. Woodpeckers, robins and even the starling took an active part in this.

Illinois

W. P. Flint (April 18): Pupae were first observed in cages at Carbondale on April 12, and at Urbana April 14. Northern Illinois (Des Plaines), of 150 overwintering larvae in cages examined, 146 were alive and none had pupated; of 26 larvae found under bark on trees in an orchard none pupated but all were alive.

Missouri

L. Haseman (April 24): The codling moth has wintered well at Columbia and began pupating in the middle of April.

R. M. Jones (April 20): The first record of pupation was made on April 3.

Nebraska

M. H. Swenk (March 1 - April 15): The first pupation of wintering larvae was observed on April 13, 5 days earlier than in 1930, 13 days earlier than in 1929, and 25 days earlier than in 1928.

Idaho

C. Wakeland (April 20): Winter mortality of the codling moth is very light.

New Mexico

J. R. Eyer (April): The codling moth is very abundant. Adults are being captured in bait traps in large numbers.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

Maine

H. B. Peirson (April 25): The eastern tent caterpillar is moderately abundant at Alfred. Hatching began April 20 in southern Maine.

New Hampshire

P. R. Lowry (April 11): The tent caterpillars are hatching and are clustered on the egg masses at Durham. This insect is not especially common this year.

Vermont

H. L. Bailey (April 23): The eastern tent caterpillar is moderately abundant in Central Vermont. Tents were being formed April 21.

Massachusetts

J. V. Schaffner, jr. (April 13): Of about 25 egg clusters examined, on wild black cherry, five were hatching. Two of the egg clusters were fairly well covered with larvae.

Connecticut

E. P. Felt (April 24): The eastern tent caterpillar does not appear to be at all abundant in southwestern New England.

W. E. Britton (April 24): Eastern tent caterpillars are scarce.

New York

Geneva Experiment Station (April 23): The eastern tent caterpillar is moderately abundant in western New York.

Maryland

E. N. Cory (April 22): The apple tree tent caterpillar appears to be quite numerous in Prince Georges and Anne Arundel Counties.

P. D. Sanders (April 21): This insect is numerous on the Eastern Shore, Wicomico County.

Virginia

H. G. Walker and G. E. Gould (April 22): The eastern tent caterpillar is scarce at Norfolk. Larvae were observed on April 16 on apple and also on wild cherry. The insects were apparently in the second instar. The colonies are not so abundant this year as last.

North Carolina

W. A. Thomas (April 10): Small webs of this insect are very noticeable at Chadbourn. The larvae are later in appearing this season as the wild cherry was much later than usual in putting out foliage.

R. W. Leiby (April 22): Apple tree tent caterpillars are nearly half grown in the Piedmont section of North Carolina. The tents appear to be present in average numbers, on apple and wild cherry.

South Carolina

P. K. Harrison (March 30): The first specimens of the eastern tent caterpillar were found this season on wild cherry. Specimens were about one-half grown.

A. Lutken (April 27): Eastern tent caterpillars are very abundant on wild cherry.

Florida

H. T. Fernald (April 25): Apple tree tent caterpillar adults have appeared but are not very abundant.

PISTOL CASE BEARER (Coleophora malivorella Riley)

Michigan

R. H. Pettit (April 24): Professor Hutson ran on to the pistol case bearer doing some injury at Muir early this week. This is the first time that we have known this insect to be of any consequence in this State.

FRUIT TREE LEAF ROLLER (Archips argyrospila Walk.)

New York

Geneva Experiment Station (April 23): The fruit tree leaf roller is locally abundant in western New York.

Weekly News Letter, New York State College of Agriculture (April): The leaf roller began hatching in the Hudson River Valley during the last week in the month. (Abstract, J.A.H.)

California

E. O. Essig (April 20): Fruit tree leaf rollers are moderately abundant in many places.

EYE-SPOTTED BUDMOTH (Spilonota ocellana Schiff.)

New York

Weekly News Letter, New York State College of Agriculture (April): The first bud moths to be seen emerging this season were reported from Ulster County during the third week in April. To date but little damage has been done. (Abstract, J.A.H.)

Geneva Experiment Station (April 23): The bud moth is abundant in western New York.

APHIDS (Aphidae)

Massachusetts

A. I. Bourne (April 24): Plant lice were hatching from the 6th to the 8th of April, and were out in considerable numbers by the 9th and 10th. This season we do not have a very important infestation. The aphids appear to be rather less abundant, if anything, than last year.

New Jersey

Weekly News Letter, New Jersey State College of Agriculture (March and April): Aphid eggs during the latter part of March were more difficult to find than usual in most orchards throughout the State. (Abstract, J.A.H.)

Pennsylvania

J. R. Stear (April 22): Found 23 aphids on 1,106 apple buds in the delayed dormant stage. These were either Aphis pomi DeG. or Rhopalosiphum prunifoliae Fitch. Scarce at Ligonier.

Georgia

C. H. Alden (April 20): Fruit aphids are scarce at Cornelia.

Missouri

L. Haseman (April 24): Fruit aphids are scarce at Columbia. For some unknown reason the various species of plant lice seem to be developing more slowly than usual in Missouri this spring.

Mississippi

R. W. Harned and assistants (April): Fruit aphids are reported as unusually abundant throughout the State.

Nevada

G. G. Schweis (April 21): Fruit aphids are reported at Reno. There is some curling on peach.

ROSY APPLE APHID (Anuraphis roseus Baker)

Connecticut

M. Turner (April 9): Four large apple orchards at Cheshire had very few rosy aphid eggs.

New York C. R. Crosby (April 24): The rosy aphid is scarce east of the Hudson River, more abundant west of the river.

Weekly News Letter, New York State College of Agriculture (April): The first aphids to be reported in Ulster County were observed on April 8. By the middle of the month hatching was quite general throughout the Lake fruit-growing area but on the whole numbers were below normal by the 20th of the month. Although the rosy apple aphid was normally abundant in the Hudson Valley early in the month, by the end of the month this species had practically disappeared. The first rosy apple aphid in the field was observed in Orange County April 9 and in Dutchess County April 10.

Geneva Experiment Station (April 23): The rosy aphid is moderately abundant in western New York.

Pennsylvania H. N. Worthley (April 17): Newly hatched stem-mothers began to appear on opening apple buds April 17. Not abundant.

South Carolina A. Lutken (April 27): This insect is scarce in the north-western part of the state.

Ohio T. H. Parks (April 27): Though the blossoms are only in the full pink condition of development, a few of these aphids can be found on apple leaves and the "curl" of the leaf already noticed. One aphid was already mature and giving birth to young in Lawrence County, April 23. Mr. C. H. Huff also reports a few present at Cincinnati.

Missouri R. M. Jones (April 20): Rosy aphids are generally scarce.

Mississippi R. W. Harned and assistants (April): The rosy aphid is attracting more attention than for a number of years in practically all parts of the State.

APPLE APHID (Aphis pomi DeG.)

New Hampshire P. R. Lowry (April 14): Green apple aphid stem-mothers have been found on the tips of swollen apple buds at Durham. Eggs were well distributed but not especially abundant this year.

Vermont H. L. Bailey (April 23): Observations through the western and central part of the State point to a considerable reduction in number of green apple aphid eggs. No nymphs were found in inspections April 20-22.

New York Weekly News Letter, New York State College of Agriculture (April): The green apple aphid was quite numerous in central New York by the middle of the month, and was very numerous at that time in western New York. The first adult of this species to be observed in Ulster County this year was seen on April 8.

Geneva Experiment Station (April 23): Green aphids are scarce in western New York.

New Jersey

Weekly News Letter, New Jersey State College of Agriculture (April): Green aphids were observed in Burlington County for the first time this year on April 17, in five orchards along the riverfront and Moorestown section, but only one or two per leafy bud, mostly near center of tree and on sucker growth of apple.

Wisconsin

A. A. Granovsky (April 3): Eggs are moderately abundant.

Missouri

R. M. Jones (April 20): Green aphids are generally scarce.

APPLE GRAIN APHID (Rhopalosiphum prunifoliae Fitch)

New York

Weekly News Letter, New York State College of Agriculture (April): The apple grain aphid was observed to be very numerous in Monroe, Wayne and other lake counties. As high as 10 or 12 aphids per bud were observed in some cases. This species seems to be the predominant aphid in the Hudson River Valley. First adults were observed in Ulster County on April 6. By the third week in the month buds were heavily infested in central and western New York.

New Jersey

Weekly News Letter, New Jersey State College of Agriculture (March and April): The first apple grain aphids of the season were observed in Monmouth County April 3. Eggs were probably hatching throughout northern and southern New Jersey during the second week in the month.

Pennsylvania

H. N. Worthley (April 17): Newly-hatched stem-mothers began to appear on opening apple buds April 15, at State College. Not abundant.

Wisconsin

A. A. Granovsky (April 3): Eggs of this insect are moderately abundant.

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

Virginia

H. G. Walker and G. E. Gould (April 22): The woolly aphid is moderately abundant at Norfolk.

Washington

M. A. Yothers (April 1): Owing to unusually mild winter temperatures great numbers of aphids have survived on the branches and trunks of apple trees. Colonies were as numerous and flourishing in March as they were by July last year, at Wenatchee.

APPLE LEAFHOPPERS (Cicadellidae)

Connecticut

W. E. Britton (April 24): Apple leafhoppers are very abundant and eggs are abundant.

Kentucky W. A. Price (April 22): Leaf hoppers are very abundant in central and western Kentucky, resulting in much spotting of the leaves on apple.

Ohio T. H. Parks (April 23): Adults (Erythroneura obliqua Say) overwintered and are now quite abundant in some orchards in Ohio River Counties. Observations were made in Hamilton, Clermont and Lawrence Counties.

Missouri R. M. Jones (April 20): Apple leafhoppers are moderately abundant.

L. Haseman (April 24): Apple leafhoppers are very abundant at Columbia. Growers are much worried about their abundance.

APPLE FLEA WEEVIL (Orchestes pallicornis Say)

Ohio T. H. Parks (April 25): The apple flea weevil in central and southern counties is now quite numerous on trees in some orchards. There appears to be serious damage ahead in some orchards. This insect has increased greatly during 1930 after being brought under control by a parasite in 1929. The infestation is spotted in central and southern counties.

APPLE TWIG BORER (Amphicorus bicaudatus Say)

Missouri L. Haseman (April 24): About the 15th of April a heavy swarm of grape cane borer beetles was reported at Tipton. It was reported that the air was simply alive with them and they collected in such numbers on the gasoline hose at a filling station as to completely cover the hose.

A WEEVIL (Stamoderes uniformis Csy.)

California S. Lockwood (April 7): On the 28th of March Mr. O. E. Bremner, Agricultural Commissioner of Sonoma County, and I found this weevil, in abundance in one orchard of Gravenstein apples. Banding of the trees had kept them from attacking the buds, but it was very easy to find two to ten pairs of weevils below the bands. On the sucker growth, not protected, the buds were all destroyed.

A WEEVIL (Stamoderes setulosus Lac.)

California A. C. Davis (April 3): The beetles were attacking newly set avocado trees, eating out the leaf buds and growing tips. This orchard of avocado is upon newly cleared land at Laguna. Found 1 to 3 per tree. (Det. by E. C. Van Dyke.)

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Vermont H. L. Bailey (April 23): The San Jose scale is scarce. Scattering infestations in Charlotte, and Chittenden Counties.

- Georgia O. I. Snapp (April 8): The percentage of dead scales on unsprayed peach trees has increased during the spring months. It is now 25.5. On January 6, 1931, it was only 8.4 per cent and on December 3, 1930, it was only 6.7 per cent at Fort Valley.
- Ohio G. A. Runner (March 1-31): The San Jose scale is more abundant on apple and peach than in the previous year.
- Iowa H. B. Jaques (April 24): The San Jose scale is moderately abundant in Grundy and Cass Counties.
- Alabama J. M. Robinson (April 20): The San Jose scale is moderately abundant at Auburn.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

- Vermont H. L. Bailey (April 23): European red mite eggs were found wherever inspections were made in the State. Inspections were in Washington, Orange, Chittenden, Addison, Rutland, and Windsor Counties. The mite was on old, uncared-for trees as well as on young orchard trees. In a few cases infestation was heavy, however. Apparently mites had not begun hatching April 22.
- Connecticut W. Turner (April 9): One large apple orchard had a larger number of eggs than last season, apparently about twice as many. Other well-sprayed orchards had few eggs at Cheshire. This mite appears to be moderately abundant at Meriden according to Dr. Garman's observations.
- New York Weekly News Letter, New York State College of Agriculture (April): On April 7 in the northern end of Cayuga County a very few red mite eggs were found. The first record of hatching of the European red spider was received from Ulster County on April 22. As a whole this insect is not being reported as unusually abundant so far this season. (Abstract J.A.H.)
- New Jersey Weekly News Letter, New Jersey State College of Agriculture (March and April): Although many counties report but little infestation by the red mite it is believed that this pest occurs in sufficient numbers to require spraying in many orchards. (Abstract J.A.H.)

PEACH

PEACH BORER (Aegeria exitiosa Say)

- Ohio T. H. Parks (April 27): Attacks by the peach tree borer are causing much concern on the part of the growers in the State.

this spring. Complaints are more numerous than usual at this time of year. Many trees have been seriously injured. Some growers will use the paradichlorobenzene treatment next month.

Missouri L. Haseman (April 24): The peach borer is very abundant in central Missouri.

Alabama J. M. Robinson (April 20): The peach borer is moderately abundant at Auburn.

LESSER PEACH BORER (Sesia pictipes G. & R.)

Georgia O. I. Snapp (April 3): Adults of the lesser peach borer are now on the wing. Male and female moths were captured today in peach orchards.

ORIENTAL FRUIT MOTH (Laspeyresia molesta Busck)

New Jersey J. Gray (March): Examination was made of trees for overwintering pupae. Some live pupae were found but mortality in the Moorestown area appears to be fairly heavy on the whole.

Virginia W. J. Schoene (April 14): Mr. L. R. Cagle found adults of the peach moth in orchards near Roanoke on April 14. The Elberta peaches were in full bloom on this date.

South Carolina A. Lutken (April 27): Adults of the oriental fruit moth emerged April 8 in the northwestern part of the State.

Georgia B. A. Porter (April 27): The first spring-brood oriental fruit moths were captured in bait traps on April 10 at Cornelia. The condition of the eggs in the females captured on this and the following day indicated that emergence began in the orchards on April 9. The overwintering brood is extremely small. The first oriental fruit moth twig injury appeared April 25.

C. H. Alden (April 20): The oriental fruit moths are emerging in moderate abundance but there is no twig injury yet at Cornelia.

O. I. Snapp (April 20): No twig injury has been observed at Fort Valley to date.

W. H. Clarke (April 8): The first adult of the overwintering broods emerged in the insectary April 8, at Thomaston.

Tennessee H. G. Butler (April 1): The insectary stock of overwintering larvae at Harriman came through the winter with very little loss. None of the larvae of this stock have pupated at this time.

Mississippi

R. W. Harned and assistants (April): The oriental fruit moth is reported as moderately abundant throughout the fruit-growing sections of the State. (Abstract J.A.H.)

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

New Jersey

Weekly News Letter, New Jersey State College of Agriculture (April 21): A few curculios have been observed in Gloucester County.

Virginia

W. J. Schoene (April 14): Mr. L. R. Cagle found adult plum curculios in orchards near Roanoke on April 14 and Mr. A. M. Woodside captured plum curculios in peach orchards at Crozet on the same day by jarring. The Elberta peaches were in full bloom on this date at both places.

North Carolina

R. W. Leiby (April 8): The first adults were jarred from peach trees at Southern Pines on April 3. This date is ten days later than for the season 1930.

South Carolina

A. Lutken (April 27): This insect emerged from hibernation April 13 in the northwestern part of the State.

Georgia

W. H. Clarke (April): Previous to April 4 only three adult curculios had been caught on jarring frames at Thomaston. On that day 35 adults were caught in less than two hours of jarring. April 9: The emergence of the plum curculio from hibernation has steadily increased since the 4th. The number of curculios being caught by jarring is much smaller than last year. Feeding and mating have been recorded in the insectary, the first mating being noted on April 7. No eggs have been found.

O. I. Snapp (April 11): The first egg of the season was found at Fort Valley today. Oviposition is starting later than last year which was considered late. (April 20): Adults are now all out of hibernation at Fort Valley and are distributed throughout orchards. They were about one month later than usual leaving hibernation, and the period of emergence from hibernation was of short duration. The population in the field at present is much lighter than at this time last year, and we are not anticipating serious damage from this insect this year. The unfavorable conditions during the 1930 pupation season, the excellent spraying season last year, and an unusual amount of jarring of trees are factors which reduced the curculio population. Adults began to appear in peach orchards at Fort Valley in numbers April 4. In one locality we took 87 from 5 trees. Only an occasional single individual was found previous to this date, as follows: March 26, 2; March 28, 1; April 2, 1; April 3, 6. Evidently they are just beginning to leave their winter quarters as a result of the

high temperatures recorded during the last several days. They are later leaving hibernation this year than during any of the last 11 years. Last year they began to leave hibernation in numbers on March 17, and that was considered late. Year before last they began to leave hibernation the first week in March. The curculio should not cause a great amount of damage this year. It is very doubtful if there will be any second generation.

C. H. Alden (April 20): The first beetles of the plum curculio were caught April 14. They are scarce at Cornelia and moderately abundant at Thomaston.

Florida J. R. Watson (April 21): The plum curculio is scarce for this date. Weather is too cool for rapid development.

Kentucky W. A. Price (April 22): The plum curculio's first emergence record in the State this year was obtained at Henderson on April 15.

Illinois W. P. Flint (April 18): First plum curculio jarred on April 14 in unsprayed, neglected orchard at Carbondale. None found to date in sprayed orchards.

Tennessee H. G. Butler (April 1): No emerging plum curculio adults have yet been taken by jarring trees near timber in the vicinity of Harriman. Five to ten per cent of the peach buds have opened by this time.

Alabama J. M. Robinson (April 20): The plum curculio is moderately abundant at Auburn.

Mississippi R. W. Harned and assistants (April): The plum curculio is not reported as unusually abundant as yet from any part of the State.

A PENTATOMID BUG (Brochymena quadripustulata Fab.)

Mississippi R. W. Harned (April 27): On April 22 M. D. Feets sent to us adults collected in a peach orchard at Brookhaven. He wrote: "Two years ago I think these insects were the cause of scars and deformed peaches. At the present time I noticed more on pecan trees than on peaches." He indicated that the infestation was light.

GREEN PEACH APHID (Myzus persicae Sulz.)

New Jersey Weekly News Letter, New Jersey State College of Agriculture (March and April): Peach aphids may be found in larger numbers than usual from indications of material brought into the green-houses during the winter. (Abstract J.A.H.)

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

Massachusetts

A. I. Bourne (April 24): The pear psylla eggs were being deposited about the 10th of April. This was the date when they were first observed in the College blocks although the warm weather during the preceding week had brought out many hibernating psyllas on the pear branches.

New York

Weekly News Letter, New York State College of Agriculture (April): The pear psylla began ovipositing in the lower Hudson River Valley during the last week in March. Adverse weather, however, cut down egg laying during the first week in April, and although large numbers of the adults were observed, practically no eggs were seen during the week. During the second week egg laying became heavy in this region, while in western New York the psyllas were just starting to emerge. During the second week in April egg laying was observed to be quite general in Niagara County. During the last week of the month hatching was quite general in the Hudson River Valley and egg laying quite prevalent in western New York. (Abstract J.A.H.)

New Jersey

Weekly News Letter, New Jersey State College of Agriculture (April 14): The pear psylla has been active during the week and large numbers of eggs have been observed. (Abstract J.A.H.)

PEAR MIDGE (Contarinia pyrivora Riley)

New York

Weekly News Letter, New York State College of Agriculture (April): Adults of the pear midge emerged in large numbers during the last week of April, necessitating spraying in the Hudson River Valley. (Abstract J.A.H.)

CHERRY

BLACK CHERRY APHID (Myzus cerasi Fab.)

New York

Weekly News Letter, New York State College of Agriculture (April): The black cherry aphid was reported quite generally during the first half of the month in the Hudson River Valley. (Abstract J.A.H.)

PLUM

RUSTY PLUM APHID (Hysteroneura setariae Thos.)

Georgia

W. F. Turner (April 14): The rusty brown plum aphid is showing up abundantly again this year on Prunus hortulana at Fort Valley. To date we haven't seen it on any other species of peach, plum, or apricot although the infested trees are surrounded by other species.

O. I. Snapp (April 9): Heavy infestation in a commercial plum orchard at Rochelle. (April 16): Another heavy infestation on plum trees at Americus.

Mississippi

R. W. Harned (April): The rusty plum aphid is reported as very unusually abundant from practically all parts of the State.

RASPBERRY

RASPBERRY CANE MAGGOT (Phorbia rubivora Coq.)

New York

Weekly News Letter, New York State College of Agriculture (April): About 25 per cent of the canes were killed in planting by the raspberry cane maggot. (Abstract J.A.E.)

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Ohio

G. A. Runner (March 1-31): Overwintering brood abundant in all vineyards visited at Sandusky. Owing to heavy infestation late in season, last year, and very favorable conditions for overwintering, these insects are more abundant than in the spring of 1930.

Utah

G. F. Knowlton (April 1): Grape leafhoppers are beginning to appear on Virginia creeper at Salt Lake City.

California

E. O. Essig (April 20): Grape leafhoppers are the most abundant ever known in the San Joaquin Valley. Hibernating adults are doing much damage.

S. Lockwood (April 18): You will be interested to learn that the grape leafhopper in the San Joaquin Valley is now more abundant than earlier reports and surveys seemed to indicate. Many of the smaller leaves, now about a quarter of their full size, have been so damaged that they have turned crisp and brown. This refers to the middle part of the San Joaquin Valley especially, though almost the entire area is supporting a far larger than normal population.

GRAPE FLEA BEETLE (Haltica chalybea Ill.)

Ohio

E. W. Mendenhall (April 18): The grape buds are being attacked and destroyed by the grapevine flea-beetle at Bethel and vicinity in Clermont County. Immediate spraying with lead arsenate is necessary.

Missouri . R. M. Jones (April 20): Several fruit growers report moderate infestations of the grape flea-beetle.

Arkansas D. Isely (April 25): The grapevine flea beetles have been unusually injurious to swelling grape buds in northwest Arkansas.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Ohio G. A. Runner (March 1-31): Examinations of overwintered material show survival of pupae to be about normal at Sandusky. No exact counts were made of material kept in vineyards. In the insectary practically out-of-door conditions prevail; one lot of cocoons protected with a light covering of grape leaves (120 cocoons) showed a survival of about 70 per cent.

PECAN

HICKORY SNUCK WORM (Laspeyresia caryana Fitch)

Alabama J. M. Robinson (April 20): Pecan snuck worm moths emerging at Auburn April 20.

PECAN CASE BEARER (Acrobasis juglandis LeB.)

Mississippi J. P. Kislancko (April 20): April 11. The pecan leaf case-bearers are moderately abundant in the vicinity of Wiggins, Stone County, and are now feeding on the young growth of pecans.

H. Dietrich (April 21): The pecan leaf case-bearers is moderately abundant on pecans at Lucedale.

R. W. Harned (April 27): On April 22 Inspector R. F. Colmer reported very severe damage to a pecan orchard near the city limits of Pascagoula, by case-bearers. Specimens sent to this office were tentatively identified by J. M. Langston as leaf case-bearers. On April 21 Walter Lewis, Pascagoula, sent specimens with the information that a good many trees in that section were covered with the case-bearer; in fact, more than ever before.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Mississippi J. P. Kislancko (April 20): The flat-headed apple tree borer is quite abundant on young pecan trees near Maxie, Stone County.

Mississippi State Plant Board, Press Release (April 27): Injury from the flat-headed apple tree borer was reported on young pecans in Forrest County and on recently pruned pecan orchards in Adams County.

BLACK PECAN APHID (Myzocallis fumipennellus Fitch)

Mississippi

J. T. Kislanko (April 20): On April 11 the black pecan aphid stem mothers were observed to assume their alate form. (Stone County.)

OBSOLETE SCALE (Chrysomphalus obscurus Comst.)

Louisiana

H. Baker (March): Below normal temperatures for March have delayed normal development, and while a few specimens had commenced the completion of the final molt by the first of March, appreciable numbers did not begin this development until the middle of March. A few specimens reached the adult stage before the end of the month and a few adult males emerged during the last few days of the month. Development at the end of the month was about two weeks behind that for the same period in 1930. Prospaltella fuscipennis Gir. (parasite) which emerges in small numbers during the entire year, has continued emergence in slightly increased numbers. During the later days of March a few specimens of two other species (yet undetermined) emerged.

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

Mississippi

H. Dietrich (April 21): Lecanium corni is very abundant on "water oak" near Lucedale, and present generally, but not in large numbers on pecans.

CITRUS

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida

J. R. Watson (April 21): Foliage on the orange and grapefruit trees has matured to an extent where it is out of danger of aphids. Comparatively little commercial damage has been done this year. The infestation on tangerines is rather heavy and some commercial damage may result. The Syrphus fly predator (Syrphus wiedemanni Johns.) has been unusually abundant this year, but another Syrphus fly which is usually abundant at this season of the year, Baccha clavata Fab. has been unusually scarce.

H. T. Fernald (April 25): Scarce in Orange County on citrus except on tangerines.

Mississippi

R. W. Farned (April 23): Specimens of Aphis spiraeicola on spirea were received from Brooksville, April 12.

A CITRUS APHID (Aphididae)

Texas

E. Mortensen (March 28): Citrus aphids are very injurious at Winter Haven.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

- Florida J. R. Watson (April 21): The citrus whitefly is moderately abundant. Now emerging.
- H. T. Fernald (April 25): The citrus whitefly is moderately abundant in Orange County. Fungi doing good work.
- Louisiana W. E. Hinds (April 23): The citrus whitefly is very abundant on satsumas and privets in Baton Rouge.
- Mississippi R. W. Harned and assistants (April): The citrus whitefly, although reported from practically the southern half of the State, is attracting attention only in the southern half.

PURPLE SCALE (Lepidosaphes beckii Newm.)

- Alabama J. M. Robinson (April 20): The purple scale is moderately abundant at Spring Hill.
- Mississippi R. W. Harned and assistants (April): The purple scale is being reported as moderately abundant from the southern third of the State.

FLORIDA RED SCALE (Chrysomphalus ficus Ashm.)

- Florida H. T. Fernald (April 23): The Florida red scale is from moderately to very abundant. More abundant than last year in Orange County.
- J. R. Watson (April 21): The Florida red scale is moderately abundant. Crawlers are beginning to appear in numbers.

SOFT SCALE (Coccus hesperidum L.)

- Mississippi J. Milton (April 20): The soft brown scale was found to be abundant on oleander at Corinth on April 17.
- H. Dietrich (April 21): Present in small numbers on satsuma at Lucedale.

SIX-SPOTTED MITE (Tetranychus sexmaculatus Riley)

- Florida J. R. Watson (April 21): The outstanding event in the line of insect attacks on citrus during the past month has been a heavy outbreak of the six-spotted mite. It seems to be general over the entire citrus belt. Some defoliation has resulted where spraying has been neglected. The spring has been unusually wet and cool, which makes the outbreak of this mite rather surprising.

T R U C K - C R O P I N S E C T S

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

Mississippi

R. W. Harned (April 23): Severe injury to mustard and rape was reported from Richton on March 25. Severe injury to turnips was reported from Hattiesburg on March 27, from Meridian on April 1, and from Polkville on April 16. A correspondent at Magee reported injury to cabbage on April 1. Severe injury to tomato plants was reported from Brookhaven on April 13, from Fayette on April 15, and from Hazelhurst on April 17. A correspondent at Liberty, Miss. sent to this office on April 21 specimens of the vegetable weevil, Listroderes obliquus, with the information that they were "ruining Irish potatoes."

Mississippi State Plant Board, Press Release (April 27): The vegetable weevil, which caused very severe damage earlier in the spring, continued its destruction through the greater part of April. At McComb this insect destroyed stands of Irish potatoes, while in Copiah and Lincoln Counties, carrots, tomatoes, and turnips were badly damaged. Complaints of serious injury from this pest were also received from Laurel, Natchez, and other places.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Virginia

H. G. Walker (April 22): The first adults observed this season were found on broccoli by Mr. L. W. Brannon on April 14. Cucumbers have not been planted in the field in the Norfolk region.

Florida

J. R. Watson (April 21): The striped cucumber beetle is very abundant in the Everglades, scarce in western Florida and absent in central Florida.

Illinois

W. P. Flint (April 20): The first adult was found April 15.

Kentucky

W. A. Price (April 22): Several specimens were found at Lexington on April 22.

Louisiana

W. E. Hinds (April 23): The striped cucumber beetle is scarce at Baton Rouge.

Mississippi

R. W. Harned and assistants (April): The striped cucumber beetle is reported as unusually abundant from the east-central part of the State. (Abstract J.A.H.)

Mississippi State Plant Board Press Release (April 13): Striped cucumber beetles are already appearing on melons in southern Mississippi and may cause serious damage.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Virginia

H. G. Walker (April 22): The first adults observed this season at Norfolk were found feeding on spinach on April 3. These beetles have been scarce in the Norfolk region so far this season.

C. R. Willey (April 24): Mr. French reports finding a single adult in narcissus blossom on April 14 in Gloucester County. While I found none myself this year I have seen them other years during narcissus inspection at blooming time, which has been around the last of March and first of April.

North Carolina

Z. P. Metcalf (April 21): The beetle is very abundant on peach, eating foliage, at Hamlet.

South Carolina

A. Lutken (April 27): The spotted cucumber beetle is scarce.

Florida

J. R. Watson (April 21): The spotted cucumber beetle is moderately abundant.

Illinois

W. P. Flint (April 20): The first adult was found April 15.

Kentucky

W. A. Price (April 22): To date we have not found the spotted cucumber beetle.

Alabama

J. M. Robinson (April 20): The southern corn root worm is moderately abundant in Auburn and Alexander City.

Mississippi

Mississippi State Plant Board, Press Release (April 27): The 12-spotted cucumber beetle was present in large numbers in George County, attacking watermelons chiefly, but also injuring turnips, cucumbers, and beans. Several other places also reported damage.

Louisiana

W. E. Hinds (April 23): Larvae were doing considerable damage to corn at Baton Rouge from about the 10th of April on.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror L.)

Oregon

T. R. Chamberlin (March 31): The first eggs from D. soror were obtained on March 10, from beetles collected in the field on March 2 in Forest Grove and vicinity. No eggs were found in the field in March although many females collected during the month seemed quite ready for oviposition. Heavy rains during the last of March have, however, hindered extended searches for eggs in the field. We have no records to date of any fields of seedling clover in the vicinity which have been destroyed by feeding of the beetles, but severe inroads have been made upon several and the final effect is yet in doubt.

California S. Lockwood (April 18): Information has just come to us that the beetle Diabrotica soror, I presume, has been responsible for considerable damage to melons around Dos Palos.

A FLEA BEETLE (Phyllotreta vittata discedens Horn)

Mississippi R. W. Harned (April 23): Flea beetles identified by J. M. Langston were reported as causing some injury to turnips at Pascagoula on April 8.

POTATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Virginia H. G. Walker (April 22): Beetles were found on volunteer potatoes near Drivers, on April 23. At present they are quite numerous on potato plants just coming through the ground at the Virginia Truck Experiment Station. The first eggs were found on April 22 by Mr. G. E. Gould.

North Carolina W. A. Thomas (April 15): Adults are unusually abundant on potatoes at Chadbourne this season and have just begun ovipositing on the foliage.

South Carolina P. K. Harrison (April 18): First specimens of the season were collected today on Irish potato on the laboratory grounds at Fairfax.

Florida J. R. Watson (April 21): There is quite a heavy infestation as far south as Alachua County.

Kansas H. R. Bryson (April 23): The Colorado potato beetle is moderately abundant at Manhattan.

Alabama J. M. Robinson (April 20): The Colorado potato beetle is moderately abundant in Auburn.

Mississippi R. W. Harned and assistants (April): The Colorado potato beetle is very abundant in the northern part of the State and moderately abundant over the remainder of the State.

Louisiana W. E. Hinds (April 23): The Colorado potato beetle is scarce at Baton Rouge.

Texas F. L. Thomas (April 10): First appearance this season of potato beetle in vicinity of Alto Lorma attacking potatoes. (April 20): The Colorado potato beetle is scarce at College Station; only two adults have been seen.

TOBACCO FLEA BEETLE (Eutrix parvula Fab.)

North Carolina W. A. Thomas (April 15): This insect was observed heavily infesting young potato plants near the laboratory at Chadbourn. The foliage is badly punctured.

Mississippi R. W. Harned (April 23): Flea beetles were reported on March 25 as causing injury to Irish potatoes at Wiggins.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Virginia H. G. Walker and G. E. Gould (April 22): The seed corn maggot is moderately abundant at Norfolk.

North Carolina W. J. Reid, Jr. (April 22): The seed corn maggot has not been so serious a pest of newly planted seed potatoes in Pamlico County this season as in the average spring. Good to excellent plant stands are being obtained in the commercial plantings. (April 18): An unusually destructive infestation of potato seed pieces by the seed corn maggot occurred in the experimental plots at the Chadbourn field laboratory. On one plot a plant stand of only 61 per cent was obtained, the missing hills being due chiefly to the insect injury. The heavy infestation is attributed to the use of large quantities of organic fertilizers and to the failure of the cut surfaces of the potato seed pieces to form a protective cork layer. A *Fusarium* decay attacked the cut surfaces of the seed and was followed by the seed-corn-maggot injury. The insect apparently hastened the spread of the fungus organism. The greater part of the larvae feeding on the seed potatoes occurred between March 15 and April 15. At the present date most of the maggots have left the seed and pupated nearby in the soil. Adults are very abundant in the field. A later planting of potatoes in an adjoining field has also been attacked. The outcome of this infestation is uncertain at the present. As many as 55 larvae were found feeding on one seed piece on April 18. These specimens are evidently of a second spring brood.

C. H. Brannon (April 20): The seed-corn maggot is causing widespread damage to sprouting snap beans.

South Carolina W. J. Reid, Jr. (April 6): The seed corn maggot has apparently not been so destructive as usual to potato seed pieces near Charleston this season. Good to excellent plant stands are being obtained. Observations of the writer indicate that the larval population of the insect is considerably below normal. This condition is attributed to prolonged cold, windy weather during the usual oviposition period of the insect, and a scarcity of suitable larval food. Partly decayed organic matter in the soil constitutes

the chief food of the larvae. Unusually dry soil conditions during February and March resulted in very little decay of the organic matter in the soils at Charleston.

Texas

F. L. Thomas (April 20): The seed corn maggot is very abundant in six counties in western Texas. April 10-16: Reported causing injury to garden peas in Coleman County, to beans and corn in Shackelford County, and to corn in Knox, Concho, Tom Green, and Runnels Counties.

CABBAGE WEBWORM (Hellula undalis Fab.)

Mississippi

H. Dietrich (April 21): The imported cabbage webworm has again become very abundant on turnip greens at Lucedale so that the cannery had to suspend operations.

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia

G. E. Gould (April 22): The spinach aphid has been unusually abundant on spinach at Norfolk this spring. The fungus Entomophthora aphidis Hoff. has also been abundant and around April 5 had killed about 75 per cent of the aphids. Large quantities of spinach harvested at this time were rejected for shipment because of the leaves being plastered with live and dead aphids. Spinach harvested from April 10 to 20 was in much better shape, although the aphids were still abundant. Eggplants in the greenhouse and coldframes also have heavy infestations.

Mississippi

H. Dietrich (April 21): The spinach aphid has been very abundant on tomato plants in the hot bed at Lucedale since early April.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla Perty)

Alabama

J. M. Robinson (April 20): The mole cricket is moderately abundant on vegetables at Sampson.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

North Carolina

W. A. Thomas (April 16): For the past few days adults have been observed in abundance in a cabbage field near the laboratory at Chadbourn. No larvae are yet in evidence.

South Carolina

P. K. Harrison (April 2): The first specimens of the season have been collected in home gardens at Fairfax.

Kentucky W. A. Price (April 22): Adults were collected at Lexington April 18.

South Dakota H. C. Severin (April 22): Adults were seen for the first time April 13, at Brookings.

Missouri L. Hasenan (April 24): During the warm days in the fore part of April cabbage butterflies appeared in great numbers over lawns and fields at Columbia, but following the cool spell throughout the latter part of April they have been little in evidence.

Mississippi G. L. Bond (April 18): The imported cabbage worm is becoming rather abundant in some fields in the vicinity of Laurel.

Nebraska M. H. Srenk (April 8): The first imported cabbage butterflies were observed flying at Lincoln April 8. (D. B. Whelan.)

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

Mississippi J. P. Kislanko (April 20): The moths were observed in large numbers at Wiggins at the light traps on April 19.

H. Dietrich (April 21): Larvae and adults are very common on turnips and mustard greens in gardens at Lucedale.

North Carolina W. A. Thomas (April 22): Last week adults were very abundant in a nearby cabbage field at Chadbourn and today it was observed that a rather large population of larvae were attacking the plants.

CABBAGE APHID (Brevicoryne brassicae L.)

Virginia G. E. Gould (April 22): The cabbage aphid is exceedingly abundant on kale and broccoli at Norfolk and is causing much damage to plants left for seed. All cruciferous crops are infested, but not so severely as kale and broccoli, which have had aphids on them since last October. A hymenopterous parasite is common in the fields and is aiding to check the aphids.

North Carolina W. A. Thomas (April 6): There has been a scarcity of this insect near Chadbourn this season, most cruciferous plants having been entirely free of aphids until recently and on this date the infestation is light.

South Carolina A. Lutken (April 27): Cabbage aphids are abundant.

Mississippi R. W. Harned and assistants (April): The cabbage aphid was reported on cabbage from Tupelo, Lee County, in April, and on collards from Ocean Springs, Jackson County, on April 9, and was very abundant on the flowering part of collards and on mustards in Stone and Forrest Counties on April 1.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia H. G. Walker (April 22): The first harlequin cabbage bugs observed this season at Norfolk were found feeding on kale and broccoli on April 9. These insects are quite abundant this spring.

North Carolina W. A. Thomas (April 21): The first specimens of the harlequin bug were observed on the flower stems of turnips at Chadbourn. Ordinarily these plants would have been heavily infested at this season of the year, but for some reason there is a scarcity of this species this season.

Florida J. R. Watson (April 21): The harlequin bug is scarce.

Alabama J. M. Robinson (April 20): The harlequin bug is very abundant on turnips, kale, and collards at Auburn and Seal.

Mississippi R. W. Harned and assistants (April): The harlequin bug is appearing in very large numbers over the southern half of the State but is still comparatively scarce over the northern third of the State.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

North Carolina W. A. Thomas (April 15): The strawberry weevil emerged nearly two weeks later than usual owing to cold spring weather, but is now extremely active over practically all the strawberry growing area in North Carolina. The injury is much more widespread this season than usual.

Alabama J. M. Robinson (April 20): The strawberry weevil adults were reported active at Planton and Jemison.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

North Carolina W. A. Thomas (April 16): The lesser corn stalk borer is doing serious damage to first-year strawberries near Chadbourn. The outer leaves are usually attacked first and later the fruit, stems, and crown are destroyed. This insect usually appears in late July and August, when considerable damage is done, but it has never before been observed in this area, injuring strawberries this early in the spring.

STRAWBERRY ROOT APHID (Aphis forbesi Wied.)

Mississippi

R. W. Harned (April 23): Aphis forbesi on strawberry from Brookhaven, April 3.

SLUGS (Mollusca)

Kansas

H. R. Bryson (April 23): Slugs were reported injuring strawberry plants at Greensburg.

BEANS

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Mississippi

R. W. Harned (April 27): Injury to beans has been reported from several localities during the past few days.

Louisiana

W. E. Hinds (April 23): This insect is quite abundant on early snapbeans and other host plants.

MELONS

MELON APHID (Aphis gossypii Glov.)

Florida

J. R. Watson (April 21): The melon aphid is appearing on watermelons in many of the counties south of Gainesville but the infestations are not heavy as yet.

CELERY

CELERY LEAF TYER (Phlyctaenia rubigalis Guer.)

Florida

H. T. Fernald (April 25): The celery leaf tyer is moderately abundant. (K.C. Moore)

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

Mississippi

H. H. Carpenter (April 20): Aphids are very abundant on turnips at Houston, Chiclasaw County, and Oxford, Lafayette County.

BEET

BEET LEAFHOPPER (Eutettix tenellus Baker)

- Utah G. F. Knowlton (April 9): The beet leafhopper is unusually abundant in Tooele County breeding areas for this time of year, and about normally abundant in some Boxelder County breeding grounds.
- New Mexico J. R. Eyer (April): Adults are very abundant and nymphs are commencing to appear.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula Fab.)

- North Carolina C. H. Brannon (April 25): Damage to tobacco plant bed by this insect is unusually light to date in spite of the unusually cool spring.
- Z. P. Metcalf (April 21): The tobacco flea beetle is very abundant in eastern North Carolina.
- Florida F. S. Chamberlin (April 14): Flea beetle emergence in Gadsden County has been later than usual this season. Only small infestations have been observed.

F O R E S T A N D S H A D E - T R E E I N S E C T S

GYPSY MOTH (Porthetria dispar L.)

- New York Monthly Letter of Bureau of Entomology No. 203 (March): R. Wooldridge, of the gipsy-moth laboratory, spent March 23 and 24 at an isolated gipsy-moth infestation in Milan, N.Y. Milan is about 9 miles east of the Hudson river in the so-called "Gipsy moth barrier zone." The special object of Mr. Wooldridge's trip was to secure information concerning any natural enemies that might be present in the infestation. Puparia of two tachinid flies, Compsilura concinnata Meig. and Sturmia scutellata R. D., were found. The discovery of the presence of the latter is of particular interest because the laboratory has no records of the parasite having been previously taken in New York State.

BROWN-TAIL MOTH (Pynia phaeorrhoea Don.)

- New Hampshire P. R. Lowry (April 13): Brown-tail moth larvae are clustered on the outside of winter webs. Webs are abundant in the southern part of the State.

FOREST TENT CATERPILLAR (Malacosoma disstria Fenn.)

Alabama J. M. Robinson (April 20): Forest tent caterpillars are active in central and northern Alabama.

Louisiana W. E. Hinds (April 23): The forest tent caterpillars are very abundant in some localities in the vicinity of Springfield, Livingston Parish, and after defoliating sweet gum and willow trees they feed to some extent on oaks and wild blackberries and have this year, as in 1930, inflicted considerable damage to strawberries, by eating the flowers, as they migrate across the strawberry fields. They do not attack the fruit.

SPRING CANCKER WORM (Paleacrita vernata Peck)

Pennsylvania J. R. Stear (April 22): The spring canker worm females were noted ovipositing on apple and moderately abundant on April 8, at Ligonier.

North Dakota J. A. Munro (April 18): Adults of the spring canker worm were first noticed at Fargo on April 6. Present indications would point to about the usual amount of defoliation injury to trees from this insect.

Oklahoma C. F. Stiles (April 27): Spring canker worms are quite numerous in Okmulgee County.

FALL CANCKER WORM (Alsophila pometaria Harr.)

Connecticut E. P. Felt (April 24): Fall canker worm eggs are abundant, and there will presumably be a considerable outbreak by these insects in southwestern New England and southeastern New York.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schrank)

Connecticut E. P. Felt (April 24): Elm-leaf-beetle conditions were such last year as to indicate very material injury in southern New England, much of eastern New York, and presumably New Jersey and farther south.

A SHOTHOLE BORER (Scolytus multistriatus Marsh.)

Connecticut E. P. Felt (April 24): The European elm bark beetle appears to have become established in a number of localities in southwestern New England and northern New Jersey, since specimens have been received within the last five months, though in no case have these infestations been associated with serious injury. This species apparently limits itself largely to sickly or dying branches.

OAK

HICKORY PHYLLOXERA (Phylloxera caryaecaulis Fitch)

Mississippi

R. W. Harned (April 27): Hickory twigs and leaves infested with galls caused by Phylloxera caryaecaulis were received from Brookhaven on April 21.

GIANT APHID (Longistigma caryae Harr.)

Louisiana

T. E. Holloway (April 8): Dense groups of these large aphids were noted on the smaller limbs of some oak trees in New Orleans. Some winged individuals were present. The aphids were first noticed on account of the large drops of honeydew which fell on automobiles parked under the trees, making mysterious spots on the enamel.

A KERMES (Kermes kingii O'kll.)

New York

E. P. Felt (April 8): A small oak twig infested with a species of Kermes, which appears to be unusually abundant on Long Island and is apparently responsible for the killing of many terminals on at least one tree. It is somewhat generally distributed, though serious infestation is presumably limited to individual trees or groups of trees.

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Connecticut

E. P. Felt (April 24): The two-lined chestnut borer may be expected to occur in considerable numbers, and very likely will increase in abundance this coming season, owing to the fact that many oaks have been weakened by drought, and in different localities by leaf-roller depredations.

PINE

PINE LEAF SCALE (Chionaspis pinifoliae Fitch)

Connecticut

W. E. Britton (April 24): The pine leaf scale is in about the same abundance as usual, attacking Scotch pine and red pine.

New York

C. R. Crosby (February 23): Infested specimens of pine received from Kenmore.

W. E. Blauvelt (March 26): Infested twigs of pine were received from Rochester.

BARK BEETLES (Ips spp.)

Pennsylvania

J. H. Knull (April 22): Numerous white pines which suffered from the 1930 drought are being attacked by bark beetles, especially by the genus Ips.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

Maine

H. B. Peirson (April 25): The white-pine weevil is abundant, emerging and mating on April 20, and at Alfred and Augusta on April 24.

POPLAR

THE HORNET MOTH (Aegeria apiforme Clerck)

Nevada

G. G. Schweis (April 21): Aegeria apiforme is present in Nevada and attacks native Fremont poplars along with Carolina poplars. At times it is quite numerous and instances have been reported that damage to local plantings of poplars has been very serious.

POPLAR BORER (Saperda calcarata Say)

Nebraska

M. H. Swenk (March): A Butler County correspondent sent specimens of larvae during the last week in March with a statement that his poplar trees were being killed by them.

TULIP

TULIPTREE SCALE (Toumeyella liriodendri Gmel.)

Connecticut

E. P. Felt (April 24): The young of the tuliptree scale are abundant in southwestern New England and southeastern New York.

I N S E C T S A F F E C T I N G G R E E N H O U S E A N D

· O R N A M E N T A L P L A N T S A N D L A W N S

APHIDS (Aphidae)

Georgia

O. I. Snapp (April 20): Aphidae are causing considerable damage to ornamental plants and plantings around homes at Fort Valley.

BLACK CITRUS APHID (Toxoptera aurantii Koch)

Mississippi

J. P. Kislanko (April 2): Pittosporum in Hattiesburg is heavily infested with Toxoptera aurantii and two other species of aphid. The former is the more numerous, curling young leaves. (Stone County.)

A MARCH FLY (Bibio albipennis Say)

Nebraska

M. H. Swenk (March): During the third week in March a Saunders County correspondent sent in a quantity of larvae with a statement that they were present in his flower bed at the rate of 25 to 50 to the spadeful of soil.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Mississippi

R. W. Harned and assistants (April): Pittosporum on several properties in Hattiesburg is heavily infested with the cottony-cushion scale, April 21. The cottony-cushion scale is abundant in Laurel, Jones County, April 18.

ALDER

SPOTTED WILLOW LEAF BEETLE (Lina interrupta Fab.)

Virginia

C. R. Willey (April 24): Specimens were sent in from S. S. Lankfort, Morattico, who states that these insects are occurring in this section by "millions." He says they are perched on fishing net stakes out in the water by the thousands. The water is full of them and they are washing up on the shore. We believe it to be the spotted willow leaf beetle. (Det. by H. S. Barber. Feeds on alder normally.)

ARBORVITAE

AN APHID (Dilachnus tinjafolinus Theob.)

Kansas

H. R. Bryson (April 23): This aphid has been increasing in numbers until it has reached outbreak proportions in various localities in Kansas, on arborvitae. At Manhattan the infestation was greatest about April 18. Not only has the new growth been attacked but the aphids have clustered on and attached the larger stems and branches.

Mississippi

R. W. Harned and assistants (April): This aphid is attracting attention in the following places; Magee, Artesia, Prairie, Pheba, New Albany, Starkville, Lucedale, McComb, Corinth, Booneville, and Baldwin. (Abstract G.M.)

CEDAR

DEODAR WEEVIL (Pissodes deodarae Hopk.)

Mississippi

R. W. Harned and assistants (April): The deodar weevil has been reported at McComb and is doing some damage in Laurel.

CHRYSANTHEMUMS

CHRYSANTHEMUM APHIDS (Aphidae)

Mississippi

R. W. Harned and assistants (April): The black chrysanthemum aphid (Macrosiphoniella sanborni Gill.) is reported from various parts of the State as unusually abundant on chrysanthemum, and the green chrysanthemum aphid (Triopalosiphum rufomaculatum Wilson) was reported on chrysanthemum from Meridian.

CHRYSANTHEMUM GALL MIDGE (Diarthronomyia hypogaea Loew)

Ohio

E. W. Mendenhall (April 18): There have been a few outbreaks of the chrysanthemum midge in greenhouses. I believe it is held pretty well in check in most of the greenhouses in Ohio, especially where plants are being shipped.

GREENHOUSE THRIPS (Heliothrips haemorrhoidalis Bouche)

Ohio

E. W. Mendenhall (April 18): I find that the greenhouse thrips is doing considerable damage to the chrysanthemums in some greenhouses in Ohio, but in the main it is held in check.

ELDERAN APHID (Aphis sambucifoliae Fitch)

Mississippi

J. P. Kislanko (April 20): A common elderberry on one property in Hattiesburg was very heavily infested with Aphis sambucifoliae Fitch. On this day, it is estimated, approximately 50 per cent of the aphids were alates and a heavy migration took place. Several days later it was observed that only small colonies of apterae and a few alates were still present on the young shoots of the elderberry.

EUONYMUSEUONYMUS SCALE (Chionaspis euonymi Comst.)

Connecticut

W. E. Britton (April 24): This scale seems to be increasing in abundance at Greenwich and New Haven. Attacking Euonymus radicans, E. alatus, bittersweet, and Pachysandra.

FERN

IVY SCALE (Aspidiotus hederæ Vallot)

Mississippi

H. Dietrich (April 21): This scale is common on fern asparagus at Lucedale.

FERN SCALE (Hemichionaspis aspidistrae Sign.)

Mississippi

H. Dietrich (April 21): Fern scale is still prevalent on ferns at Lucedale.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

CLOVER MITE (Bryobia praetiosa Koch)

Nebraska

M. H. Swenk (April): Extremely widespread was the clover mite as a pest in houses during the first half of April. These reports came from Lancaster County, west and northwest to Frontier and Boyd Counties.

Kansas

H. R. Bryson (April 23): Dr. E. G. Kelly reports slight injury by the clover mite to one field of wheat at Garden City, April 18.

CATTLE

SHORT-NOSED OX LOUSE (Haematopinus eurysternus Nitz.)

Nebraska

M. H. Swenk (March 15 - April 15): A correspondent in Dawson County reported his 500 head of cattle quite badly infested with the sucking louse.

HORSES

BUFFALO GNATS (Simuliidae)

Mississippi

R. W. Harned (April 12): There have been many newspaper reports in regard to the serious damage caused by the appearance of large numbers of buffalo gnats in Coahoma and Tunica Counties. The seriousness of the situation according to E. P. Krick, Monroe, La., Red Cross field representative, justifies outside assistance in scores of cases, as many of the farmers have no money to replenish their stock. Mr. Krick said a complete statement will be filed with the National Red Cross headquarters with recommendations for immediate assistance as the delta farmers are in the midst of planting and need animals

for plowing and preparing lands. He plans to visit stricken sections in Arkansas tomorrow before returning to Monroe.

(April 18): We lost about 200 mules in Coahoma County within twenty-four hours time from some kind of gnat or fly. I am very sorry that we did not collect specimens at the time that we were losing so many mules. However, the fly or gnat causing the loss of so many mules was about one-half the size of the average house fly and twice the size of the average buffalo gnat. We still have a very heavy infestation of the buffalo gnat, but this gnat is not killing the mules.

Kansas

H. R. Dryson (April 23): Simulium vittatum Zett has been causing damage to mules, cattle, and hogs south of Westmoreland. Dr. R. C. Smith reports that two dozen flies were collected from the tops of the ears of several animals. One mule near death, has badly swollen neck and head.

POULTRY

CHICKEN MITE (Dermanyssus gallinae Redi)

Nebraska

M. H. Swenk (March 15 - April 15): Poultry mites were reported as very troublesome from Otoe and Custer Counties.

HOUSEHOLD AND STORED-PRODUCT

INSECTS

TERMITES (Reticulitermes spp.)

New Hampshire

P. R. Lowry (April 16): Winged termites swarming in a heated basement room in Durham. (April 13): Termites (R. flavipes Kollar) found working outdoors around a wooden porch in Dover.

North Carolina

R. W. Zeiby (April 22): Our office is receiving an unusual number of complaints about termites, the number being probably due to the activities of a commercial exterminating company operating in the cities of Charlotte, High Point, Salisbury, and Statesville.

Nebraska

M. H. Swenk (March 15 - April 15): Additional reports of damage by termites (R. tibialis Banks) in houses and farm buildings and at the roots of trees were received during the period here covered from Richardson, Clay, Kearney, and Furnas Counties.

Kansas

H. R. Bryson (April 23): Termites are rapidly becoming a major insect pest in Kansas. An increase in the number of reports from various sections of the State indicate that the infestations are generally distributed throughout the State. Recent reports during the past month also indicate that many public buildings are being damaged. Among those reported as infested are; Bank, theatre, high school, garage, and post office. Reports were obtained from Peabody, Atchison, Hill City, Gaylord, Hoxie and Manhattan. Termites killed young pear trees at Gaylord planted during the past two years. Numerous requests for information regarding these pests were also received during the past month.

Mississippi

Mississippi Plant Board, Press Release (April 27): With the approach of spring, scores of complaints of termites have poured into the office of the State Plant Board. Laurel, Columbus, Greenville, Starkville, Natchez, and Meridian were among the many places in the State from which damage was reported.

ANTS (Formicidae)

Utah

G. F. Knowlton (April 15): Many requests are being received concerning the control of ants in houses and gardens.

Nebraska

M. H. Swenk (April): During the first half of April many complaints were received of great swarms of winged ants (Lasius interjectus Mayr) emerging in the basement of houses. These reports came from all over the State south of the Platte River from the Missouri River to Adams County. (April 15-17): A Nuckolls County correspondent reported her house badly overrun with carpenter ants (Camponotus herculeanus pennsylvanicus DeG.) under date of April 15.

BOXELDER BUG (Leptocoris trivittatus Say)

North Dakota

J. A. Munro (April 18): A number of inquiries have been received on boxelder bugs of late. The bugs have been reported as active on warm days, since the early part of April.

Idaho

C. Wakeland (April 20): Several reports of the boxelder plant bug as an annoying pest of households have been received recently from different parts of the State.

Utah

G. F. Knowlton (April 9): The boxelder bug has become scattered and is much less of a household pest at the present time than it was a week ago.

Nebraska

M. H. Swenk (March): A correspondent in Washington County sent in specimens with a statement that they were emerging in large numbers from mulberry wood stored in his basement.

SILVER FISH (Lepisma saccharina L.)

North Dakota

J. A. Munro (April 18): Silver fish have been reported from several towns in the State. The reports indicate that the pest is rather abundant in basement locations and in the vicinity of books. The pest has been noticed to be fairly abundant in the basement of the Agricultural Building and the Library at the State College.

SPRINGTAILS (Collembola)

North Dakota

J. A. Munro (April 18): Specimens of springtails were received from a fox farmer at Lisbon. The letter accompanying the specimens stated that the insects had been prevalent for more than a year in a heated building used as a feed house on the fox farm. The specimens captured were taken from the surface of a pan of water sitting on the floor of the house.

A MITE (Tyroglyphus americanus Banks)

Nebraska

M. H. Swenk (March 1 - April 15): During the first half of March a few reports of infestation of stored wheat with various stored-grain pests were received from the southeastern counties. From Dawson County a sample of flaxseed heavily infested with this mite was received during the first week in April.

PLANT QUARANTINE AND CONTROL ADMINISTRATION

Notes abstracted from "News Letter," April, 1931

(Not for publication)

ORANGE MAGGOT (Anastrepha ludens Loew)

Mangoes brought to Matamoros from the State of Michoacan, in the southern part of Mexico, were rather heavily infested with fruit worm larvae; some 485 specimens were collected, most of which were from mangoes.

PARLATORIA DATE SCALE (Parlatoria blanchardi Targ.)

The only finding of infestation in the Coachella Valley during the month of February involved 4 palms in one of the infested plantings which has no commercial value. These palms were dug out and destroyed.

PINK BOLL WORM (Pectinophora gossypiella Saund.)

During February, 1,064 samples, of 100 bolls each, were inspected at the laboratory with negative results. These samples had been collected in counties in Alabama, Georgia, Mississippi, and Texas.

GYPSY MOTH (Porthetria dispar L.)

All of the work in Dukes Park, N. J., was completed during the second week of February and no gypsy moth infestation was found. Dukes Park is the property where the original gypsy moth infestation consisting of over 3,000,000 egg clusters was located in 1920. Infestations have been discovered in the townships of New Marlboro, Sheffield, and Sandisfield, Mass.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

The clean-up of isolated infestations of the European corn borer on Manchester Island, Lewis County, and in Bradford Township, Bracken County, Ky., is very nearly completed.

PORTO RICO

Insect conditions during March and April, 1931.

A very heavy infestation of a beetle borer (Apate francisca Fab.) was investigated March 17 to 21 in the Barrio of Los Angeles at Lares, where about 100 coffee trees on about 1 acre had been injured. Some injured guaba trees had been cut down, and an orange, an "aguacate," and some "pomarrosa" fence posts had also been slightly injured; burrows made by the beetles were found also in two "achiote" trees. In a pigeon pea planting in the Barrio of Espinosa 50 infested plants had been cut and burned. By the first week in April on the occasion of the next visit to Lares no further injury had been reported and the outbreak had apparently almost subsided. (Mr. Sein)

The moth stalk borer (Diatraea saccharalis Fab.) is generally much more abundant than previously because of the change of variety of cane grown, the B.H. (10) 12 now extensively grown being softer and sweeter and more susceptible to infestation. This is despite the rather general adoption of nonburning of trash, which favors Trichogramma. Of course the trash must be burned in preparing the land for planting, and as less cane is ratooned, the areas in which trash is left on the fields are more limited in extent, especially on the south coast. (G.N. Wolcott)

In the region on the south coast between Ponce and Guayama, white grubs (Phyllophaga portoricensis Smyth) have been much less abundant since the hurricane in 1928 than they were previously, and the same is also true of the weevil root-stalk borer, Diaprepes abbreviatus L. Mr. Osborn has reared two previously unknown egg parasites of the latter, but the parasite situation, so far as white grubs is concerned, is unchanged. Cultivation practices, however, have been greatly changed, about two-thirds of the area being plant cane, and only about one-third is ratoon. Subsoiling with steam plows is standard practice now, which definitely kills grubs by crushing them, while with less thorough preparation only grubs actually cut by the plowshares were killed. Rainfall has been much more abundant, which possibly may have had some effect. (G.N. Wolcott)

Reports and observations indicate that the tobacco leaf-miner (Phthorimaea operculella Zell.) has been doing considerable damage, more so than usual, to fields of tobacco in Comerio and Caguas, and also in one 3-acre field near Rio Piedras. Unusually dry weather is undoubtedly the cause. (M. D. Leonard)

A light infestation of the red-striped sugarcane scale (Pulvinaria iceryi Guer.) on the leaves of some sugarcane plants grown in one of the greenhouses of the Insular Experiment Station at Rio Piedras was found on March 26. (M. D. Leonard)

A large citrus grower reported that about one-third of 30,000 grapefruit seedlings in his nursery at Bayamon had been killed by white

grubs (Phyllophaga, probably citri Smyth) (M. D. Leonard.)

A light infestation of the lima bean pod borer (Maruca testulalis Geyer) on blossoms and pods of lima beans in a 2-acre planting at Juana Diaz was observed on March 13. (A. S. Mills.)

A leaf beetle (Ceratoma denticornis Fab.) was fairly common on the string bean plots at the Experiment Station at Rio Piedras, but doing little damage. (M. D. Leonard.)

A leaf beetle (Diabrotica graminea Baly) was reported by Pedro Osuna of the Insular Experiment Station as fairly abundant on about 1 acre of Irish potatoes at Comerio and on about 5 acres at Adjuntas, early in March. This insect was also reported by A. S. Mills as moderately infesting a 1-acre planting of okra at Trujillo Alto on March 27, the beetles feeding on both leaves and flower buds. (M. D. Leonard.)

The potato flea beetle (Epitrix cucumeris Harr.) was present in increasing numbers during January and February and very injurious in March in several fields of potatoes in Comerio, Adjuntas, Cidra, Caguas, and Rio Piedras, according to Pedro Osuna, of the Insular Experiment Station. (M. D. Leonard.)

Under date of March 19 a report was received from Humacao saying that considerable damage was being done to plantings of sweet potato there by Cylas formicarius Fab. (M. D. Leonard.)

A leafhopper, Empoasca jabanæ DeLong, was abundant on string beans in experimental plots at the Insular Experiment Station at Rio Piedras throughout the month, becoming more destructive towards harvesting at the end of the month. (M. D. Leonard.)

A small garden patch of Irish potatoes was reported by Pedro Osuna as badly infested by Myzus persicae Sulz. on March 31; many of the leaves were curled. (M. D. Leonard.)

Specimens of a bug, Spartocera batatas Fab., were received for determination from Utuado from Agricultural Agent A. Correa, who stated under date of March 20 that they were injuring the experimental plots of Irish potatoes. This is apparently the first report of injury to Irish potatoes by this insect in Porto Rico. (M. D. Leonard.)

Mr. E. F. Roarke of the San Juan Ginnery Company reports that the cotton leaf worm (Alabama argillacea Hbn.) was starting to work in one field of cotton at Isabela. This is the first infestation observed on the north coast in this year's crop. No infestations were reported during March for the south coast. (M. D. Leonard.)

Counts made on the pink boll worm (Pectinophora gossypiella Saund.) by several of the local agricultural agents on the south coast, examining

100 mature but unopened bolls in each field, showed the following percentages of infestation:

March 10, Lajas (3 fields) 85 per cent, 18 per cent, 24 per cent
March 10, Sabana Grande (1 field) 16 per cent
March 10, San German (1 field) 38 per cent
March 11, Cabo Rojo (2 fields) 80 per cent, 84 per cent

Heavy infestations by Dysdercus andreae L. were reported by Messrs. Mills and Faxon of the Plant Quarantine and Control Administration in fields of cotton at Ponce, Guayanilla, and Penuelas on March 13, (April 16): The pink boll worm is becoming more abundant on the south coast. (M. D. Leonard.)

CUBA

Notes on observations during March and April, 1931.

By U. C. Loftin.

On March 15 we received a complaint that cane was being damaged at Central Cuba, Mantanzas Province. The insects proved to be Cirphis latiuscula H. S.. and an undetermined Lepidopterous larva. On March 30 another complaint was received from Central Socorro that C. latiuscula was damaging cane. This is unusually early in the season for the grassworms, as they generally do not become abundant enough to attract attention until after the beginning of the rainy season, or in the latter part of May or early June.

A field of velvetbeans on the Station grounds at Central Baragua that were planted last November are nearly mature and are being turned under for green manure. A very light infestation of the velvetbean caterpillar (Anticarsia gemmatilis Hon.) was noticed last December, but since that time the beans have not been attacked by this pest.

On March 19 young corn at Central Jaronu, Camaguey Province, was heavily infested and badly damaged by Lophyuma frugiperda S. and A.

Notes on Hemiptera and Homoptera
at Canton, Kwangtung Province, Southern China

1924-1929 1

by Wm. E. Hoffman
Professor of Biology, Lingnan University, Canton, China

Note: The food plants of each of the species named below are listed in the order of preference as indicated by field observation to date. Except where otherwise noted, the plants are known to be food plants.

I. Plataspidæ

1. Brachyplatys subaeneus Westw. 2

1. Lima bean, "Min tau" (Phaseolus lunatus L.); common.
2. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.); common.
- 3-4. Two other species of cultivated beans.
Mr. Wall reported it on beans called "Ng uet tau" and "Paat uet tau."

2. Coptosoma punctatissima Mont.?

1. Lima bean, "Min tau" (Phaseolus lunatus L.); common, perhaps only a minor pest.

3. Coptosoma variegatum H. S.

Found on the following plants, and although feeding is difficult to observe, it is believed that the bug feeds on all those listed, with the possible exception of Zea mays. It also feeds on some unidentified plants.

1. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
2. Species of Convolvulaceae.
3. Common nightshade, "Paak fa ts'oi" (Solanum nigrum L.).

- 1 Contribution from the Department of Biology, Lingnan University.
- 2 The writer is indebted to Mr. T. E. China for naming most of the species discussed in this paper.

4. Sweetpea (Lathyrus odoratus L.).
5. Royal Poinciana, "Kan fung shue" (Delonix regia (Boj.) Raf.).
6. "Ying shue" (Albizia chinensis (Osbeck) Merr.).
7. Pigeon pea, "Muk tau" (Cajanus cajan (L.) Millsp.) (= Cajanus indicus Spreng.).
8. "Paak yuk laan (white jade orchid)" (Michelia champaca L.).
9. Morning-glory (Ipomoea purpurea Roth.).
10. Chrysanthemum (Chrysanthemum sp.).
11. Lima bean, "Min tau" (Phaseolus lunatus L.).
12. A third species of cultivated bean.
13. Asparagus (Asparagus officinalis L.).
14. Deck (Rumex sp.).
15. Pummelo, "Poh luk" or "Yau tsz" (Citrus maxima (Burn.) Merr.).
16. Hibiscus (Hibiscus rosa-sinensis L.).
17. Poinsettia (Poinsettia sp.).
18. Corn, maize, "Suk mai" (Zea mays L.).

II. Cydnidae

1. Cydnus indicus Westw.

Common in Canton. Nothing known concerning its habits. Frequently comes to lights at night.

2. Geotomus pygmaeus Dall.

Taken at lights at Nodoa, Hainan Island.

III. Pentatomidae 1

1. Cantao ocellatus Thunb.

A forest-inhabiting species feeding upon the fruits of various trees. Abundant at Nadoa, Hainan Island.

2. Poecilocoris druriei (L.).

1. "Shui tong."

At times very numerous. Feeds on the fruits of this tree which is grown as an ornamental. Said to be a minor pest on mulberry in Formosa but never found on that tree at Canton.

- 1 Notes relating to the geographical distribution, biology, and bionomics of some of the species of Pentatomidae discussed herein were given in a paper entitled "Notes on the bionomics of some oriental Pentatomidae (Hemiptera)" read by the writer at the 11th International Congress of Zoology, Padua, Italy, 1930, and now in press in the proceedings of that Congress.

3. Chrysocерis grandis Thunb., var baro Fab.

1. "Chin mai chik shue."
2. "Shui yung."
3. "Paak yukt laan (white jade orchid)" (Michelia champaca L.).
4. Gardenia sp.
Not numerous.

4. Scotinophara lurida (Burn.).

Not abundant in the vicinity of Canton. A minor pest on rice.

1. Rice, "Toh" (Oryza sativa L.).
2. Grasses.

5. Erthesina fullo (Thunb.).

In Kwangtung found feeding on the trunks and larger branches of 31 species of trees representing about as many families. A minor pest. 1

6. Halyabbas unicolor Dist.

Feeds on bamboo stems but is not abundant enough to be considered a pest. Usually found on the variety of bamboo known as "Lak chuk."

7. Campaеа taprobanensis Dall.

Not common in the vicinity of Canton. At times a minor pest.

1. Pummelo, "Poh luk" or "Yau tsz" (Citrus maxima (Burn.) Merr.).

8. Halyomorpha picus (Fab.).

Feeds by preference on beans (feeding on all parts of the plant) and is a pest of considerable importance. 2

1. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
2. Lima bean, "Min tau" (Phaseolus lunatus L.).
3. Common nightshade, "Faak fa ts'oi" (Solanum nigrum L.).
4. Hibiscus (Hibiscus rosa-sinensis L.).
5. Prince's feather (Celosia cristata L.).
6. "T'ang ts'oi" (Basella rubra L.).
7. An unidentified species of cultivated bean.

1 For further information, including life history notes, see Lingnan Science Journal 9 (1 and 2): 139-142, 1 fig. 1930.

2 A paper on this bug by the writer appeared in Peking Nat. Hist. Bull. 5 (pt. 2): 25 and 26, 1 pl. March, 1931.

9. Tolumnia latipes Dall.

1. Nightshade, "Paak fa ts'oi"; feeds on fruits.
2. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
3. Wild shrub (fruits).

10. Eysarcoris guttiger Thunb.

Minor pest on Phaseolus and Vigna.

1. Common nightshade, "Paak fa ts'oi" (Solanum nigrum L.).
2. Lima bean, "Min tau" (Phaseolus lunatus L.); feeds on pods.
3. "Lofu lei (tiger's tongue)" (Polygonum perfoliatum L.).
4. "T'ang ts'oi", Basella rubra L.
5. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
6. Prince's feather (Celosia cristata L.).
7. "Kam poon ngan chan" (Bidens chinensis Willd.).
8. Egg plant, "Ai kwa" (Solanum melongena L.).
9. Corn, maize, "Suk mai" (Zea mays L.).

11. Agonoscellis nubila Fab.

Found on several plants not yet identified. Not numerous. Reported very numerous at Foochow in Fukien Province by Prof. C. R. Kellogg.

12. Eurydema pulchrum Westw.

At least a minor pest on "Kaai laan" (Brassica sp.), feeding on stems and seed pods.

1. "Kaai laan" (Brassica sp.).
2. Cauliflower "Ye ts'oi fa" (Brassica oleracea L., var. botrytis L.).
3. Kohl rabi (Brassica caulorapa Pasq.).
4. Lettuce, "Shaang ts'oi" (Lactuca sativa L.).
5. "Lo fu lei (tiger's tongue)" (Polygonum perfoliatum L.).
6. "Yeung pin ts'oi" (Emilia sonchifolia (L.) DC.). A Chinese drug plant.
7. "Paak ts'oi" (Brassica chinensis L.).

13. Bagrada sp., probably picta Fab.

Feeding and breeding in large numbers on an unidentified tree near Nodda, Hainan, in early July, 1929.

14. Catacanthus incarnatus Drury.

Feeds on several species of plants at Canton and in Hainan. At Depok, near Buitenzorg, Java, I found it feeding on Ixora nigrescens.

15. Nezara viridula L.

This species feeds on well over 100 species of plants representing at least twenty-nine families of monocotyledonous and dicotyledonous plants. Pest on Phaseolus and Vigna.

1. Common nightshade, "Paak fa ts'oi" (Solanum nigrum L.).
2. Lima bean, "Min tau" (Phaseolus lunatus L.).
3. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
4. A third species of cultivated bean.
5. Corn, maize, or "Suk mai" (Zea mays L.).
6. Canna (Canna sp.).
7. "Fu lwa (bitter melon)" (Momordica charantia L.).
8. "Kaai laan" (Brassica sp.).
9. Polygonum sp.
10. Morning-glory (Ipomoea purpurea Roth.).

16. Plautia fimbriata (Fab.).

Pest on Vigna sesquipedalis L.; minor pest on Phaseolus lunatus L.

1. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
2. Common nightshade, "Paak fa ts'oi" (Solanum nigrum L.).
3. Lima bean, "Min tau" (Phaseolus lunatus L.).
4. Canna (Canna sp.).
5. "T'ang ts'oi" (Basella rubra L.).
6. Chrysanthemum (Chrysanthemum sp.).
7. Morning glory (Ipomoea purpurea Roth.).
8. "Kaai laan" (Brassica sp.); in laboratory only.

17. Critheus lineatifrons Stal.

Found on one species of bamboo only. Destroyed most of the new culms during 1926. Specimens scarce during 1928. During 1927 and 1929 no observations were made.

1. Bamboo.

18. Antestia anchora Thunb.

Taken in Hainan by our expedition in 1929 but food plants not ascertained.

19. Menida formosa Westw.

Taken in many localities in Hainan Island.

20. Menida histrio Fab.

During the spring and summer of 1928 this species was very numerous on corn and was at least a minor pest. There is a reason to believe that it feeds also on a species of ornamental hedge, commonly grown on Lingnan University campus. Both nymphs and adults feed on the

leaves and stems of bamboo and also on the larvae of a chrysomelid beetle which skeletonizes bamboo.

1. Corn, maize, "Suk mai" (Zea mays L.). Feeds on developing grain.
 2. Bamboo, "Chuk."
- Also carnivorous.

21. Piezodorus rubrofasciatus Fab.

At least a minor pest in Kwangtung Province and Hainan Island.

1. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).

22. Rhynchoscoris humeralis Thunb.

On several species and varieties of oranges, feeding on the fruits in all stages of development from the very small green ones to over-ripe ones, thus causing the fruits to drop from the trees. It was impossible to ascertain the exact name of the food plant in many cases, with the result that the forms named below constitute only a partial list.

1. "Kam kwat" (Fortunella margarita (Lour.) Swingle).
2. "Kam kwat" (Fortunella japonica (Thunb.) Swingle).
3. "Sz kwai kwat" (Citrus microcarpa Bunge) (C. nitis Blanco).
4. Mandarin orange (Citrus nobilis var. deliciosa Swingle).
5. Sweet orange, "Ch'iu chan ch'ang" (Citrus sinensis Osbeck).

Further information on this pentatomid may be secured by referring to the following notes by the writer: "A stink-bug injurious to Citrus in South China." Iroc. Third Pan-Pacific Sci. Congress, Tokyo, 1926: 2030-2038 (1929). "The life History of Rhynchoscoris humeralis Thunb. (Hemiptera, Pentatomidae). Lingnan Science Journal 7:817-823, 2 plates, 1929 (1931).

23. Cantheconidea furcellata Wolff.

Apparently primarily carnivorous but also feeds on plants.

1. Tallow tree, "Oo k'au shue" (Sapium sebiferum (L.) Roxb.) on leaf.
 2. Sweet potato, "Faan shue" (Inomoea batatas (L.) Poir). On leaf.
- Found feeding on lepidopterous larvae affecting banyan, Sapium sebiferum, Phaeobius lunatus, and chrysomelid larvae feeding on bamboo and sweet potato. The latter larvae are Metritona circumdata Host.

24. Andrallus spinidens Fab.

Carnivorous as far as our observations go. The nymphs, deep blue or purplish in color, feed on various caterpillars.

25. Tessaratomia papillosa Drury.

Causes thousands of dollars of damage annually to the lychee crop in Kwangtung Province. 1

1. Lychee, "Lai chi" (Litchi chinensis Sonn.).
2. Lungan, "Lung ngaan (dragon's-eye)" (Euphoria longana Lam.).

26. Vitruvius insignis Dist.

On bamboo in Hainan Island. Minor pest. Feeds on terminal branches.

27. Aspongopus fuscus Westw.

This stink bug is a serious pest on cucurbits and castor oil bean, and a minor pest on lima bean.

1. Squash, "Kam kwa" (Cucurbita maxima Duch.).
2. Cucumber, "Wong kwa" (Cucumis sativa L.).
3. Bottle gourd, "Foo lo kwa" (Lagenaria vulgaris Ser.).
4. Castor oil bean (Ricinus communis L.).
5. Lima bean, "Min tau" (Phaseolus lunatus L.).

28. Megymenon (Pseudaradus) brevicornis (Fab.).

Often found in association with Aspongopus fuscus Westw., and constitutes a serious pest on cucurbits and the Chinese long bean. It tides over between vegetable crops on escaped individuals of Celosia cristata L.

1. Cucumber, "Wong kwa" (Cucumis sativus L.).
2. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
3. Bottle gourd, "Foo lo kwa" (Lagenaria vulgaris Ser.).
4. Squash, "Kam kwa" (Cucurbita maxima Duch.).
5. Prince's feather (Celosia cristata L.).
6. "Hung Fung sin fa" (Impatiens balsania L.).
7. Lima bean, "Min tau" (Phaseolus lunatus L.).

29. Diplorhinus furcatus Westw.

Taken in the interior of Hainan on low-growing herbs.

- 1 Mr. R. B. Falkenstein, formerly connected with the biology department of Lingnan University, made an extensive study of this bug and has a lengthy report on the same now in press (Lingnan Science Journal).

30. Megarrhamphus hastatus Fab.

Occurs in grass on White Cloud Mountain at Canton and on Ling Fa Ling (Mountain) in Hainan.

31. Microdeutorus megacanthus H. S.

Taken at lights in Hainan in June.

IV. Urostylidae

1. Urostylis sp.

Found among grass and herbs on mountains in central part of Hainan Island.

V. Coreidae

1. Mictus serina Dall.

1. "Yau ko" (Litsea glutinosa (Lour.) C. B. Rob.).
 2. Litsea polyantha Juss.
 3. Psychotria sp.
 4. "Shek paan shue" (Stranvaesia benthameana (Hance) Merr.).
 5. "Lak t'ong" (Zanthophyllum sp.).
- Another species of Mictus was taken at Nodda, Hainan Island.

2. Anoplocnemis phasiana Fab.

This bug is a serious pest on the first seven plants named below. It has been found only occasionally on the remainder of the plants in the list.

1. Lima bean, "Min tau" (Phaseolus lunatus L.).
2. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
3. A third species of cultivated bean.
4. Cat-tail tree or "Maau nei nuk" (Dolichandrone cauda-felina Benth. & Hook.).
5. Cassia nodosa Buch.-Ham.
6. Pigeon pea, "Muk tau" (Cajanus cajan (L.) Willsp.) (= Cajanus indicus Spreng.).
7. Hibiscus (Hibiscus rosa-sinensis L.).
8. Peanut, ground nut, or "Fa shaang" (Arachis hypogaea L.).
9. Bamboo, "Chuk".
10. "Hop foon shue" (Albizzia labbeck (L.) Benth.).
11. Anaranthus sp.
12. Guava (Isidium guajava L.).

A rather full discussion of this species by the writer is now in press in Lingnan Science Journal. A. binotata Dist. was taken by our expedition in the mountains at Yuen Moon, Hainan Island.

3. Homoeocerus (Anacanthocoris) strucornis (Scott).

1. "Hop foon shue" (Albizzia lebbek (L.) Benth.). Minor pest.
2. "Ying shue" (Albizzia chinensis (Osbeck) Merr.). Minor pest.

4. Homoeocerus (Tagus) walkeri (Kirby).

1. "Ying shue" (Albizzia chinensis (Osbeck) Merr.). Pest.
 2. "Hop foon shue" (Albizzia lebbek (L.) Benth.). Minor pest.
- A species near H. graminis Fab. was taken at Nodda, Hainan.

5. Notobitus sp.

Serious pest on several species of bamboo. Feeds on new culms.
Fed on pods of Vigna sesquipedalis L. in laboratory.

6. Cloresmus modestus Dist.

1. Bamboo, "Chuk"

Minor pest feeding on new culms, not abundant.

7. Hygia opacus Uhl.

1. Morning-glory (Ipomoea purpurea Roth.).

8. Acanthocoris scaber L.

Very serious pest every year on cape gooseberry and peppers. Frequently does much damage to eggplant and squash.

1. Cape gooseberry, "Tang lung kwoh" (Physalis peruviana L.).
2. Nightshade or "Faak fa ts'oi" (Solanum nigrum L.).
3. Morning-glory (Ipomoea purpurea Roth.).
4. Cayenne pepper (Capsicum annuum L.).
5. Pepper (Capsicum sp.).
6. Eggplant, "Ai kwa" (Solanum melongena L.).
7. Squash, "Kam kwa" (Cucurbita maxima Duch.).
8. "Yeung so hing" (Cestrum nocturnum L.).
9. "Taai lo shan" (Solanum torvum Sw.).

For detailed information concerning the life history, economic status, etc., see Hoffmann: "Notes on a squash-bug of economic importance." Lingnan Sci. Journ. 5 (3): 281-292, 2 pl. 1927. (1929)

9. Flinachtus sp.

1. "Lo fu lei (tiger's tongue)" (Polygonum perfoliatum L.).
2. Prince's feather (Celosia cristata L.).

10. Cletus bipunctatus H. S.

11. Cletus punctiger Dall.

Our food-plant records were not always kept distinct for these two species. Specimens of this genus have frequently been observed feeding and breeding on Celosia cristata L. and Polygonum perfoliatum L.

The food list is as follows:

1. "Lo fu lei (tiger's tongue)" (Polygonum perfoliatum L.).
2. Prince's feather (Celosia cristata L.).
3. Chenopodium sp.
4. Polygonum sp.
5. Lima bean, "Min tau" (Phaseolus lunatus L.)
6. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
7. A third kind of cultivated bean.
8. Canna (Canna sp.).
9. Cape gooseberry "Tang lung kwoh" (Physalis peruviana L.).
10. Corn, maize, "Suk mai" (Zea mays L.).
11. Eggplant, "Ai kwa" (Solanum melongena L.).
12. "Tsz koo" (Sagittaria sagittifolia L.).

12. Clavigralla horrens Dohrn. .

1. Lima beans, "Min tau" (Phaseolus lunatus L.).
Not very common. Found also in Hainan Island.

13. Lentocoris acuta (Thunb.).

14. Lentocoris varicornis Fab.

15. Lentocoris sp.

Our food-plant records were not always kept distinct for these three species.

1. Rice, "Joh" (Oryza sativa L.).
2. Prince's feather (Celosia cristata L.).
3. Common nightshade, "Fauk fa ts'oi" (Solanum nigrum L.).
4. Grasses.
5. Corn, maize, "Suk mai" (Zea mays L.).

16. Riptortus linearis Fab.

17. Riptortus pedestris

18. Riptortus sp.

Food-plant records were not kept separately for the first two species. The last named is a very small species and has been found feeding and breeding on but one species of plant, a wild legume with yellow flowers.

1. Lima bean, "Min tau" (Phaseolus lunatus L.).
2. Chinese long bean, "Tau kot" (Vigna sesquipedalis L.).
3. Third species of cultivated bean.
4. "Ngan hor foon" (Leucaena glauca Benth.).
5. Common nightshade, "Taak fa ts'oi" (Solanum nigrum L.).
6. Peanut, ground nut, or "Fa shaang" (Arachis hypogaea L.).

19. Daclera sp.

1. "Hon foon shue" (Albizzia lebbek (L.) Benth.). In pods.

20. Lentocoris abdominalis Fab.

Taken by our expedition in Hainan Island.

VI. Lygaeidae

1. Lygaeis hospes F.

1. Common nightshade, "Taak fa ts'oi" (Solanum nigrum L.).
2. Cape gooseberry, "Tang lung kwoh" (Physalis peruviana L.).
3. A Chinese drug plant, "Yeung piu ts'oi" (Emilia sonchifolia L.).
4. Wild legume with yellow flowers.

2. Grantostethus servus Fab.

1. Morning-glory (Ipomoea purpurea Roth.). A species near to G. servus is also found at Canton.

3. Nysius sp.

1. Prince's feather (Celosia cristata L.). Abundant, feeding and breeding on this plant. The bugs puncture the seeds. A species of Nysius has also been found on Solanum nigrum.

4. Aphanus sordidus Fab.

1. Common nightshade, "Taak fa ts'oi" (Solanum nigrum L.). Common. Feeds and breeds on this plant and has not been taken on any other plant. Also taken in Hainan Island (at lights).

5. Miscellaneous lygaeids.

- 1-8. Orthaea (Iamera) nietneri Dohrn, O. vincta Say., O. vitalisi, O. punctulata Motsch.? and Macropses sp. are also found in Canton, while Dinomachus rhacinus Dist., Dienches femoralis

Dohrn, and Caenocoris sanguinarius Stal are found at Nodda, Hainan, and undoubtedly occur in the vicinity of Canton as well. Dinomachus rhacinis and Dienches fernalis were taken at lights.

VII. Pyrrhocoridae

1. Dysdercus megalonyx Brodd.?

1. Cotton (Gossypium sp.).
2. Hollyhock (Althaea rosea Cav.).
3. Roselle (Hibiscus sabdariffa L.).
4. "Fu yung fa" (Hibiscus mutabilis L.).
5. "Chi tau roh" (Urena lobata L.).

Common on cotton and roselle. Found also in Hainan Island but record of host plants not secured. Dindymus sanguineus Fab. also taken in Hainan. What appears to be a third species of pyrrhocorid was found feeding and breeding on "Mong fa" (Hibiscus tiliaceus L.) in late October (1928) at Taipe Market, New Territory, Kwangtung Province.

VIII. Tingitidae

1. Stephanitis pyrioides Scott.

1. Azalea.

IX. Miridae

1. Deraeocoris sp.

1. Tallow tree, "Oo k'au shue" (Sanium sebiferum (L.) Roxb.).
Mirids, not yet determined, occur in numbers on Albizzia chinensis (Osbeck) Merr. and a cultivated species of Chrysanthemum. Unidentified species of mirids occur on Albizzia chinensis (Osbeck) Merr., Vigna sesquipedalis L., Phaseolus lunatus L., Cucumis sativus L., and Solanum nigrum L.

X. Cicadidae

1. Flatypleura hilpa Walk.

Commonly taken on Acacia, "T'oi waan seung sz shue" (Acacia confusa Merr.).

The species enumerated below were taken in Hainan by our expedition in 1929:

1. Flatypleura hilpa Walk.
2. Fomponia sp. near fusca Oliv.

3. Dundubia longina Dist.?
4. Huechys sanguinea DeG.
5. Huechys sanguinea var. philaenata Fab.
6. Muda virguncula Walk.

XI. Cercopidae

1. Cosmoscarta binaculata Walk.

1. Banana, "Tsiu" (Musca sp.).
2. Canna, (Canna sp.).
3. Chinese long bean, "Tau kok" (Vigna sesquipedalis L.).
4. Grape (Vitis vinifera L.).
5. "Iaak yuk laan (white jade orchid)" (Michelia champaca L.).
6. Scissors grass, "Kaau tsin ts'io" (Belamcanda chinensis L. DC.).
7. Eucalyptus (Eucalyptus robusta Smith).
8. Gardenia sp.
9. Bamboo, "Chuk".

The above feeding records refer to the adults. No information is at hand regarding the food habits of the nymphs which feed on the underground parts of plants and probably are pests of some importance. This species is also found in Hainan.

2. Clovio puncta Walk.

Very abundant. Host plants not known.

XII. Cicadellidae

The following have been taken at Canton but host plants were not recorded:

1. Drabescus sp., near angulatus Sign.
2. Nemhotettix binunctatus Fab.
3. Tettigoniella ferruginea Fab.
4. Goniagnathus punctifer Walk.
5. Selenocephalus sp.
6. Bythoscorus sp.
7. Athysanus sp.
8. Aconura sp.?
9. Deltocephalus sp.
- 10-11. Farabolocratas spp.
T. ferruginea also taken in the mountains of Hainan Island.

XIII. Fulgoridae

1. Proutista moesta Westw.

1. Sugar cane, "Che" (Saccharum officinarum L.).

Found feeding on the leaves of sugar cane in Hainan Island during 1929 by the members of the Lingnan University 5th Hainan Island Expedition. This species also occurs in India, Java, and the Philippines. (Identified by Mr. F. W. Olan.)

2. Fulgora candelaria L. (Lung ngaan kai (Lungan chicken)."

1. Tallow tree, "Oo H'au shue" (Sapium sebiferum L. Roxb.).

Quite common but remains too high on the trees to permit observation of feeding habits. Also found in Hainan.

XIV. Flatidae

1. Salurnis marginellus Guer.

1. Orange.

XV. Delphacidae

1. Tropidocenhala (Smara) atrata Dist.

Host plant not known.

